

June 2011

# HORSE WELFARE

## Action Needed to Address Unintended Consequences from Cessation of Domestic Slaughter



G A O

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Highlights of GAO-11-228, a report to congressional committees

June 2011

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#### Why GAO Did This Study

Since fiscal year 2006, Congress has annually prohibited the use of federal funds to inspect horses destined for food, effectively prohibiting domestic slaughter. The U.S. Department of Agriculture (USDA) is responsible for overseeing the welfare of horses transported for slaughter.

Congress directed GAO to examine horse welfare since cessation of domestic slaughter in 2007. GAO examined (1) the effect on the U.S. horse market, if any, since cessation; (2) any impact of these market changes on horse welfare and on states, local governments, tribes, and animal welfare organizations; and (3) challenges, if any, to USDA's oversight of the transport and welfare of U.S. horses exported for slaughter. GAO analyzed horse price and shipping data, and interviewed officials from USDA, state and local governments, tribes, the livestock industry, and animal welfare organizations, and reviewed documents they provided.

#### What GAO Recommends

GAO suggests that Congress may wish to reconsider restrictions on the use of federal funds to inspect horses for slaughter or, instead, consider a permanent ban on horse slaughter. GAO recommends that USDA issue a final rule to protect horses through more of the transportation chain to slaughter and consider ways to better leverage resources for compliance activities. USDA agreed with GAO's recommendations and noted specific actions it will take to implement them.

View GAO-11-228 or key components. For more information, contact Lisa Shames at (202) 512-3841 or [shamesl@gao.gov](mailto:shamesl@gao.gov).

#### What GAO Found

Since domestic horse slaughter ceased in 2007, the slaughter horse market has shifted to Canada and Mexico. From 2006 through 2010, U.S. horse exports for slaughter increased by 148 and 660 percent to Canada and Mexico, respectively. As a result, nearly the same number of U.S. horses was transported to Canada and Mexico for slaughter in 2010—nearly 138,000—as was slaughtered before domestic slaughter ceased. Available data show that horse prices declined since 2007, mainly for the lower-priced horses that are more likely to be bought for slaughter. GAO analysis of horse sale data estimates that closing domestic horse slaughtering facilities significantly and negatively affected lower-to-medium priced horses by 8 to 21 percent; higher-priced horses appear not to have lost value for that reason. Also, GAO estimates the economic downturn reduced prices for all horses by 4 to 5 percent.

Comprehensive, national data are lacking, but state, local government, and animal welfare organizations report a rise in investigations for horse neglect and more abandoned horses since 2007. For example, Colorado data showed that investigations for horse neglect and abuse increased more than 60 percent from 975 in 2005 to 1,588 in 2009. Also, California, Texas, and Florida reported more horses abandoned on private or state land since 2007. These changes have strained resources, according to state data and officials that GAO interviewed. State, local, tribal, and horse industry officials generally attributed these increases in neglect and abandonments to cessation of domestic slaughter and the economic downturn. Others, including representatives from some animal welfare organizations, questioned the relevance of cessation of slaughter to these problems.

USDA faces three broad challenges in overseeing the welfare of horses during transport to slaughter. First, among other management challenges, the current transport regulation only applies to horses transported directly to slaughtering facilities. A 2007 proposed rule would more broadly include horses moved first to stockyards, assembly points, and feedlots before being transported to Canada and Mexico, but delays in issuing a final rule have prevented USDA from protecting horses during much of their transit to slaughtering facilities. In addition, GAO found that many owner/shipper certificates, which document compliance with the regulation, are being returned to USDA without key information, if they are returned at all. Second, annual legislative prohibitions on USDA's use of federal funds for inspecting horses impede USDA's ability to improve compliance with, and enforcement of, the transport regulation. Third, GAO analysis shows that U.S. horses intended for slaughter are now traveling significantly greater distances to reach their final destination, where they are not covered by U.S. humane slaughter protections. With cessation of domestic slaughter, USDA lacks staff and resources at the borders and foreign slaughtering facilities that it once had in domestic facilities to help identify problems with shipping paperwork or the condition of horses before they are slaughtered.

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# Contents

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<b>Letter</b>		<b>1</b>
	Background	5
	U.S. Slaughter Horse Market Has Changed Since Domestic Slaughter Ceased in 2007	10
	Horse Welfare Has Reportedly Declined, Although the Extent Is Unknown, Straining the Resources of State and Local Governments, Tribes, and Animal Welfare Organizations	18
	USDA's Oversight of the Welfare of Horses Transported for Slaughter Is Complicated by Three Challenges	27
	Conclusions	42
	Matters for Congressional Consideration	44
	Recommendations for Executive Action	45
	Agency Comments and Our Evaluation	46
<b>Appendix I</b>	<b>Objectives, Scope, and Methodology</b>	<b>47</b>
<b>Appendix II</b>	<b>Results of the Econometric Analysis of Horse Sale Prices</b>	<b>56</b>
<b>Appendix III</b>	<b>Comments from the U.S. Department of Agriculture</b>	<b>59</b>
<b>Appendix IV</b>	<b>GAO Contact and Staff Acknowledgments</b>	<b>61</b>
<b>Related GAO Products</b>		<b>62</b>
<b>Tables</b>		
	Table 1: Estimates for Effect of Cessation of Slaughter and Economic Downturn on Horse Sale Prices by Sale Price Category, Spring 2004 through Spring 2010	18
	Table 2: Semi-log Coefficients for Hedonic Quantile Regression of Horse Prices	58

---

## Figures

Figure 1: USDA Owner/Shipper Certificate to Document Horses' Fitness to Travel to a Slaughtering Facility	7
Figure 2: Number of Horses Slaughtered in the United States, 1990 through 2007	11
Figure 3: U.S. Exports of Horses Intended for Slaughter and Other Purposes, 2004 through 2010	12
Figure 4: Distribution of Horse Prices from the Horse Auctions Used in the Analysis, Spring 2004 through Spring 2010	15
Figure 5: Average Horse Prices Before and After Cessation of Horse Slaughter for Each Price Category, Spring 2004 through Spring 2010	16
Figure 6: Estimates of the Effect on Horse Prices from Closing Domestic Slaughtering Facilities and the Economic Downturn for Each Price Category, Spring 2004 through Spring 2010	17
Figure 7: A Band of Horses, Some of Hundreds That Have Been Neglected on Montana Ranchland and Seized by the County after the Collapse of Their Owner's Ranching Company	22
Figure 8: Wild Horse Herd on Degraded Land Owned by the Yakama Nation in Washington State	23
Figure 9: Slaughter Horse Transport Program's Budget Obligations, Fiscal Years 2005 through 2010	31
Figure 10: Sections of USDA Owner/Shipper Certificate to be Completed by Shippers or Canadian or Mexican Officials	34
Figure 11: Number of Investigation Cases and Alleged Violators of the Slaughter Horse Transport Program Regulation, Fiscal Years 2005 through 2010	39
Figure 12: Example of Transport of Horses to Slaughtering Facilities Before and After Domestic Slaughter Ceased	41

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### Abbreviations

APHIS	Animal and Plant Health Inspection Service
BLM	Bureau of Land Management
CFIA	Canadian Food Inspection Agency
FSIS	Food Safety Inspection Service
OIG	Office of Inspector General
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (Mexico)
TRAGIS	Transportation Routing Analysis Geographic Information System
USDA	U.S. Department of Agriculture

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United States Government Accountability Office  
Washington, DC 20548

June 22, 2011

The Honorable Herb Kohl  
Chairman  
The Honorable Roy Blunt  
Ranking Member  
Subcommittee on Agriculture, Rural Development,  
Food and Drug Administration, and Related Agencies  
Committee on Appropriations  
United States Senate

The Honorable Jack Kingston  
Chairman  
The Honorable Sam Farr  
Ranking Member  
Subcommittee on Agriculture, Rural Development,  
Food and Drug Administration, and Related Agencies  
Committee on Appropriations  
House of Representatives

Many countries consider horsemeat an appropriate part of human diets—and horsemeat was consumed in the United States as recently as the mid-1940s. However, the slaughter of horses for any purpose, especially for human consumption, is now a very controversial issue in the United States, stemming largely from differences in how the country's estimated 9 million horses are viewed. For example, some, including animal rights advocates, horse enthusiasts, and some state governments, oppose horse slaughter, citing the horse's iconic role in helping to settle the American West; its former importance as a work and transportation animal on farms and in rural communities; and its continued value as a show, racing, and recreation animal. Moreover, for many, horses are companion animals, similar to dogs, cats, or other domestic pets. In contrast, others, including the livestock and meatpacking industries and other state governments, support horse slaughter, noting a strong export market for horsemeat; the economic and employment benefits to local communities of horse slaughtering facilities; and limited alternative options for dealing with unwanted horses. Moreover, for many proponents of slaughter, horses are livestock, similar to cattle, sheep, swine, and other farm animals raised to produce commodities for human consumption. At present, horses are not slaughtered in the United States due to an annual prohibition on the use of federal funds to inspect horses at slaughter. However, horses may be purchased at auctions or other sales and exported for slaughter to Canada.

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and Mexico. Horse slaughtering facilities in these countries generally export the meat to consumer markets in Europe and Asia.

Aside from the question as to whether it is appropriate to slaughter horses for human consumption, both sides of this issue have raised concerns about unintended consequences of the cessation of domestic slaughter. For example, both sides note that horses intended for slaughter must now travel much farther distances to foreign slaughtering facilities, potentially, during some part of that trip, in conveyances designed for smaller animals and without adequate rest, food, and water. This controversy has also attracted media attention, with reports of the inhumane treatment of horses during transit or at foreign slaughtering facilities. For those who oppose horse slaughter, the solution is to ban both domestic horse slaughter and trade in horsemeat or horses intended for slaughter for human consumption, effectively ending the export of horses intended for slaughter. Bills were introduced in the 107th and 108th Congresses to create such a ban, but none were enacted into law. In contrast, for those who support horse slaughter, the solution is to reopen domestic slaughtering facilities. Although Congress has not acted to create an explicit ban on horse slaughter, starting in fiscal year 2006, it included language in annual appropriations bills that prohibits the use of federal funds for inspection by the U.S. Department of Agriculture (USDA) of horses in transit to slaughter and at slaughtering facilities.<sup>1</sup> In debating this provision in the House of Representatives, opponents argued that it would not end horse slaughter, but instead would move this slaughter across the borders, hurting horse welfare by increasing the distances horses would travel to slaughter. However, proponents of the provision countered that there was no evidence of decreased horse welfare in states that had banned slaughter.

As recently as 2007, three domestic horse slaughtering facilities—two in Texas and one in Illinois—continued to operate despite the prohibition on using federal funds for inspecting horses at slaughter. These facilities stayed open by paying for these inspections under a voluntary fee-for-service

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<sup>1</sup>Federal law requires that all U.S. horses slaughtered for human consumption and placed in commerce be inspected.

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program implemented by USDA in February 2006.<sup>2</sup> However, in 2007, all three facilities closed when courts upheld state laws in Texas and Illinois prohibiting sale or possession of horsemeat and horse slaughter, respectively. New horse slaughtering facilities have, in effect, been prohibited from opening in other states since then because Congress has continued the annual prohibition on the expenditure of federal funds to inspect horses at slaughter, and it added a prohibition on the use of federal funds, beginning in fiscal year 2008, for implementation of the fee-for-service program as well. Although the domestic slaughter of horses for human food has stopped, USDA's Slaughter Horse Transport Program (transport program) continues to operate. The program, established in 2001, is intended to ensure that horses traveling to slaughter are fit to travel and handled humanely enroute. Among other things, the program collects and reviews shipping documents and inspects conveyances used to transport these horses. However, because of the prohibition on using federal funds for inspecting horses transported to slaughter, the transport program may not inspect the condition of horses designated for slaughter during their transport.

The Senate Committee on Appropriations directed that GAO examine the status of horse welfare in the United States since horse slaughter operations ceased in 2007.<sup>3</sup> Our objectives to address this issue were to examine (1) the effect on the U.S. horse market, if any, since domestic slaughter for food ceased in 2007; (2) the impact, if any, of market changes on horse welfare and on states, local governments, tribes, and animal welfare organizations; and (3) challenges, if any, to USDA's oversight of the transport and welfare of U.S. horses exported for slaughter.

To address these objectives, we interviewed officials from USDA and other federal agencies, state and local governments, and tribes and representatives from the livestock industry and animal welfare organizations and reviewed the documents that they provided. We also reviewed published literature addressing issues related to the horse industry

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<sup>2</sup>This program enabled slaughtering facilities to pay for inspections of horses prior to slaughter so that horses could continue to be processed for human consumption without the use of appropriated funds. It was established under the Agricultural Marketing Act, which authorizes a voluntary inspection service, on a fee-for-service basis, for agricultural products. USDA has used this authority to provide inspections for animals it deems exotic, including reindeer, elk, deer, antelope, and water buffalo. In 2006, USDA extended this authority to horses. Meat inspected and passed under this authority is branded with a USDA mark of inspection and can be sold interstate or exported.

<sup>3</sup>S. Rep. No. 111-39, at 44 (2009).



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and slaughter. In addition, we visited border crossings, horse auctions, and tribal lands to observe how horses are handled and processed. More specifically, to examine the effect on the U.S. horse market since domestic slaughter ceased in 2007, we collected and analyzed horse trade data for fiscal years 2005 through 2010—to cover the 2 years before and after domestic slaughter ceased—from USDA and the Department of Commerce and horse sales data from three large, geographically dispersed, U.S. livestock auctions for spring 2004 through spring 2010. Using these data, along with other data, including economic data from the Department of Labor, we developed an econometric model to analyze the effect of the slaughter cessation on horse prices while controlling for other factors, such as the U.S. recession that began in December 2007. We selected five academic experts who have published studies of the horse industry to review our model specifications and results for any fatal flaws; they generally found the model and results credible. To examine the impact of horse market changes on horse welfare and states, local governments, tribes, and animal welfare organizations, we also used semi-structured interviews to systematically collect the views of the State Veterinarian in each of a sample of 17 states that generally have the largest horse populations and economies.<sup>4</sup> In some cases, this official was joined by other state officials, such as members of the state livestock board, for these interviews. The results of the interviews are not generalizable to all State Veterinarians but provide information on the situations faced by these 17 states. We performed a content analysis of the results of these interviews to identify common themes and the frequency with which certain issues were raised regarding the impacts of changes in the horse market. Furthermore, to examine the challenges to USDA's oversight of the transport of U.S. horses exported for slaughter, we identified and analyzed a generalizable sample of about 400 horse shipping forms for fiscal years 2005 through 2009 that are maintained by the transport program. Each form represents one load or shipment of horses. Using the data from these forms and mapping software, we estimated distances that horses traveled to slaughter before and after domestic slaughter ceased. Appendix I provides further detail on our scope and methodology.

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<sup>4</sup>These states are California, Colorado, Florida, Indiana, Kentucky, Louisiana, Maryland, Missouri, Montana, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Texas, and Wyoming. Each state has a State Veterinarian who is hired by the state government to oversee animal health matters within the state. The duties of the staff in a State Veterinarian's office may include monitoring herds and flocks of animals for disease, regulating the movement of animals within and across state lines, animal welfare, and, in some states, meat inspection.

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We conducted this performance audit from April 2010 through June 2011, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

The Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Bill) authorized USDA to issue guidelines for the regulation of the commercial transportation of horses and other equines for slaughter by persons regularly engaged in that activity within the United States. The statute gives USDA authority to regulate the commercial transportation of equines to slaughtering facilities, which the statute indicates include assembly points, feedlots, or stockyards. The authority to carry out this statute was delegated to USDA's Animal and Plant Health Inspection Service (APHIS). Pursuant to this authority, APHIS issued a regulation, "Commercial Transportation of Equines to Slaughter" (transport regulation), in 2001. In 2001, APHIS also established the transport program. This program seeks to ensure that horses being shipped for slaughter are transported safely and humanely. In addition, USDA's Food Safety Inspection Service (FSIS) carries out the Humane Methods of Slaughter Act and related regulations, which require the humane handling of livestock, including horses, in connection with slaughter.<sup>5</sup>

APHIS's transport regulation establishes a number of requirements that owners/shippers (shippers) must meet for horses transported to slaughter. The regulation states that shippers must (1) provide horses with food, water, and rest for at least 6 hours prior to loading; (2) provide horses adequate floor space in whatever conveyance (e.g., a trailer) is being used; (3) segregate all stallions and other aggressive equines; and (4) ensure that trailers are free of sharp protrusions, are not double-decked, and have adequate ventilation. If a trip is longer than 28 hours, horses must be unloaded and provided at least 6 hours of food, water, and rest before

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<sup>5</sup>For more information on the Humane Methods of Slaughter Act, see GAO, *Humane Methods of Slaughter Act: Weaknesses in USDA Enforcement*, GAO-10-487T (Washington, D.C.: Mar. 4, 2010); *Humane Methods of Slaughter Act: Actions Are Needed to Strengthen Enforcement*, GAO-10-203 (Washington, D.C.: Feb. 19, 2010); and *Humane Methods of Slaughter Act: USDA Inspectors' Views on Enforcement*, GAO-10-244SP (Washington, D.C.: Feb. 19, 2010).

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being reloaded. Horses cannot be shipped to slaughter unless they are accompanied by an "Owner/Shipper Certificate—Fitness to Travel to a Slaughter Facility" (owner/shipper certificate) certifying that the horses are fit for travel. The certificate must state that horses are over 6 months of age, are not blind in both eyes, can bear weight on all four limbs, are able to walk unassisted, and are not likely to foal (i.e., give birth) during transport. Figure 1 provides an example of this certificate. Shippers found to be in violation of the transport regulation can face penalties of \$5,000 per horse, per violation.

**Figure 1: USDA Owner/Shipper Certificate to Document Horses' Fitness to Travel to a Slaughtering Facility**

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0160. The time required to complete this information collection is estimated to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

OMB NO  
0579-0160

UNITED STATES DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE VETERINARY SERVICES		OWNER/SHIPPER CERTIFICATE FITNESS TO TRAVEL TO A SLAUGHTER FACILITY (Please type or print in ink)	
TIME HORSES LOADED ON CONVEYANCE	DATE	CITY AND STATE WHERE HORSES WERE LOADED ON CONVEYANCE	
VEHICLE LICENSE NO. AND DRIVERS NAME		NAME OF AUCTION/MARKET	
CONSIGNOR (OWNER/SHIPPER) NAME		CONSIGNEE (RECEIVER/DESTINATION) NAME	
STREET ADDRESS		STREET ADDRESS	
CITY, STATE, AND ZIP CODE		CITY, STATE, AND ZIP CODE	
AREA CODE AND TELEPHONE NO.		AREA CODE AND TELEPHONE NO.	

CHECK THE BOX THAT INDICATES THE FOLLOWING IS TRUE FOR ALL THE HORSES ON THIS CERTIFICATE

☐ Pregnant mares are not likely to foal (give birth) during the trip ☐ Horses are able to bear weight on all 4 limbs  
☐ Foals are older than 6 months of age ☐ Horses are not blind in both eyes ☐ Horses are able to walk unassisted

	TAG PREZ. IN	TAG NO.	COLOR DESCRIPTION							BREED/TYPE							SEX			BRANDS Tattoos, etc.	RE MARKS include existing conditions
			Bay	Gray	Brn	Fmso	Chest	Other	Tr	Qt	Craft	Thors	Other	Male	Stall	Unst					
1																					
2																					
3																					
4																					
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7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

HORSES HAVE HAD ACCESS TO FOOD, WATER, AND REST FOR A MINIMUM OF 6 CONSECUTIVE HOURS IMMEDIATELY BEFORE LOADING INTO CONVEYANCE

SIGNATURE: \_\_\_\_\_

I HEREBY AUTHORIZE THE CFIA TO DISCLOSE THIS DOCUMENT AND THE INFORMATION IN IT AS COMPLETED BY THE CFIA OR DUE TO THE USDA. FALSIFICATION OF THIS FORM OR KNOWINGLY USING A FALSIFIED FORM IS A CRIMINAL OFFENSE AND MAY RESULT IN A FINE OF NOT MORE THAN \$10,000 OR IMPRISONMENT FOR NOT MORE THAN 5 YEARS OR BOTH, 18 U.S.C. SECTION 1001.

SIGNATURE OF OWNER/SHIPPER (I certify that the information contained in this form is true and correct to the best of my knowledge): \_\_\_\_\_

CANADIAN FOOD INSPECTION AGENCY (CFIA)	
EST.	_____
DATE	_____
TIME	_____
DIRECCION GENERAL DE INSPECCION EN FRONTERAS (DGIF)	
EST.	_____
DATE	_____
TIME	_____

VS FORM 10-13  
MAR 2010

PREVIOUS EDITIONS ARE OBSOLETE

PAGE 1 OF \_\_\_\_\_

Source: USDA's Animal and Plant Health Inspection Service.

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As of fall 2007, the last three horse slaughtering facilities in the United States were closed following unsuccessful challenges to state laws banning the practice. According to USDA data, those facilities, two in Texas and one in Illinois, slaughtered almost 105,000 horses in 2006—the last full year of operations—and exported more than 17,000 metric tons of horsemeat, which was valued at about \$65 million at that time. Regarding the Texas facilities, in January 2007, the U.S. Court of Appeals for the Fifth Circuit ruled that a 1949 Texas law banning the sale or possession of horsemeat applied to them. They ceased operations in May 2007. Regarding the Illinois facility, the state enacted a law in May 2007 making it illegal to slaughter horses for human consumption. In September 2007, the U.S. Court of Appeals for the Seventh Circuit upheld this slaughter ban, and the Illinois facility ceased operations that month.

Since fiscal year 2006, Congress also has taken annual actions in appropriations legislation that have effectively prevented the operation of horse slaughtering facilities in the United States by prohibiting USDA's use of federal funds to (1) inspect horses being transported for slaughter and (2) inspect horses intended for human consumption at slaughtering facilities. The 1996 Farm Bill authorized the issuance of guidelines for the regulation of the commercial transportation of equines for slaughter as well as the conduct of any inspections considered necessary to determine compliance. The Federal Meat Inspection Act requires inspection of certain animals, including cattle, sheep, swine, goats, and horses, before they are slaughtered and processed into products for human food to ensure that meat and meat products from those animals are unadulterated, wholesome, and properly labeled. However, Congress prohibited USDA from using appropriated funds to pay for these inspections, effective 120 days after enactment of the fiscal year 2006 appropriations legislation on November 10, 2005.

Following the prohibitions, the three domestic slaughtering facilities open at that time petitioned USDA to create a voluntary fee-for-service inspection program for horses prior to slaughter, and USDA created such a program in early 2006, allowing required inspections, and, thus, domestic slaughtering, to continue. The congressional prohibition on use of appropriated funds continued in fiscal year 2007, but, as previously

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discussed, the plants had already been shut down by state law that year.<sup>6</sup> In fiscal year 2008, Congress renewed the prohibition on the use of appropriated funds for inspections on horses being transported to slaughter and at slaughtering facilities, and it added a new prohibition on the use of appropriated funds for implementation or enforcement of the fee-for-service program. These prohibitions were continued in fiscal years 2009 through 2011. These prohibitions notwithstanding, U.S. horses intended for slaughter are still allowed to be transported within the United States under the oversight of USDA's transport program and exported to slaughtering facilities in Canada and Mexico.

In September 2010, USDA's Office of Inspector General (OIG) reported, in part, on the operations of the transport program.<sup>7</sup> The OIG found that APHIS needs to improve its controls for ensuring that horses being shipped to foreign facilities for slaughter are treated humanely. For example, APHIS does not deny authorization to shippers with a record of inhumanely transporting horses intended for slaughter from shipping other loads of horses, even if unpaid fines are pending for previous violations. The OIG also found deficiencies in how APHIS tags horses that have been inspected and approved for shipment to foreign slaughtering facilities. For example, the agency requires shippers to mark such horses with backtags, which are intended to allow APHIS to trace horses back to their owner and also to verify that horses have passed inspection by an accredited veterinarian. However, APHIS lacked an appropriate control to track individual horses by backtag number on approved shipping documents so that it could perform reconciliations, investigate violations, and initiate enforcement actions, as appropriate. In addition, the OIG noted that APHIS needs to obtain the resources necessary to adequately oversee the transport program and issue in final a proposed rule that would broaden the scope of the agency's regulation of horses being shipped to foreign slaughtering facilities. In its official response to the OIG report, APHIS concurred with the OIG's findings and recommendations

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<sup>6</sup>Two plants in Texas were effectively closed when a court there upheld a state statute prohibiting the sale or possession of horsemeat. *Empacadora de Carnes de Fresnillo, S.A. de C.V. v. Curry*, 476 F. 3d 326 (5th Cir. 2007). A plant in Illinois closed after a court there upheld a state statute prohibiting horse slaughter. *Cavel Int'l v. Madigan*, 500 F. 3d 551 (7th Cir. 2007).

<sup>7</sup>U.S. Department of Agriculture, Office of Inspector General, *Animal and Plant Health Inspection Service Administration of the Horse Protection Program and the Slaughter Horse Protection Program*, Audit Report 33601-2-CK (Washington, D.C.: Sept. 30, 2010).

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related to the transport program, and APHIS proposed specific actions and time frames for implementing the recommendations.<sup>8</sup> For example, APHIS agreed to work with USDA's Office of General Counsel and complete by May 31, 2011, an evaluation of "the best options to revise regulations necessary that will establish an agencywide policy that those who have violated the humane handling regulations and failed to pay the associated penalties shall not receive endorsement of any subsequently requested shipping documents."

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## U.S. Slaughter Horse Market Has Changed Since Domestic Slaughter Ceased in 2007

The U.S. slaughter horse market has changed since domestic slaughter for food ceased in 2007, particularly in terms of increased exports to Canada and Mexico and lower domestic sales and prices, especially for lower-value horses, according to our analysis of available trade data and horse auction sales data.

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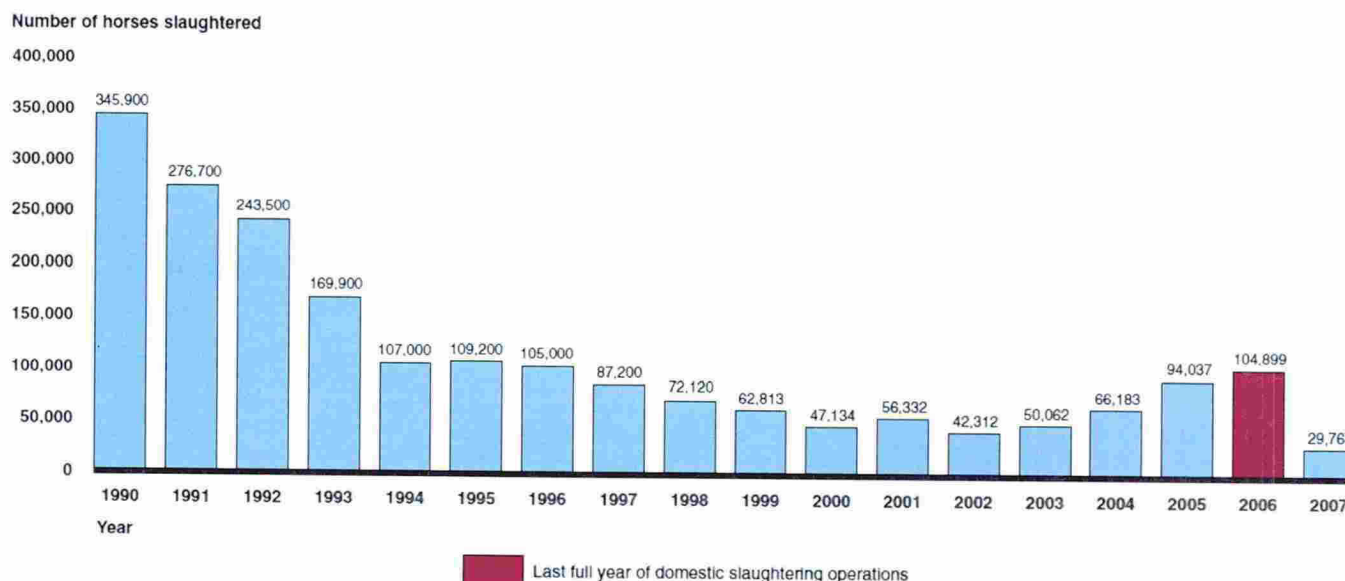
## Horse Exports to Canada and Mexico Have Increased with the Cessation of Domestic Slaughter

The number of horses slaughtered in the United States decreased from 1990 (345,900 horses) through 2002 (42,312 horses), according to available data from USDA's National Agricultural Statistics Service. At the same time, the reported number of slaughtering facilities dropped from at least 16 U.S. facilities that operated in the 1980s to 7 facilities in 1994 to as few as 2 in 2002. Beginning in 2003, however, the number of horses slaughtered began rising through 2006, the last full year of domestic slaughtering operations, when nearly 105,000 horses were slaughtered in the United States. According to USDA officials, this increase can be explained, in part, by the reopening of a horse slaughtering facility in DeKalb, Illinois, in 2004 that increased domestic slaughtering capacity. This facility had been closed for 2 years following a fire set by anti-slaughter arsonists. Because all domestic slaughtering facilities closed by September 2007, however, the number of horses being slaughtered in the United States dropped to zero by the end of that year. Figure 2 shows the changes in the number of horses slaughtered in the United States from 1990 through 2007.

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<sup>8</sup>APHIS's official response may be found at the end of the OIG report.

Figure 2: Number of Horses Slaughtered in the United States, 1990 through 2007



Source: GAO analysis of USDA's National Agricultural Statistics Service data.

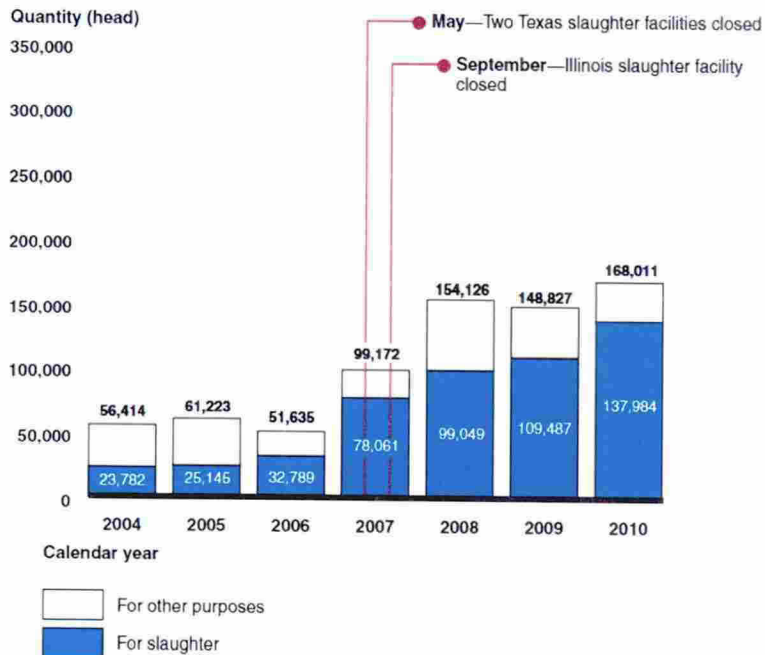
Before 2007, horses were slaughtered in domestic slaughtering facilities only when the horsemeat was destined for consumption by humans or zoo animals. Currently, pet food and other products, including glue, may still be obtained from the corpses of horses that are hauled to rendering plants for disposal. The production of these products is not covered by the requirements of the Federal Meat Inspection Act and is therefore not affected by the current ban on the use of appropriated funds for the ante-mortem inspection of horses destined for human consumption. According to a transport program official, USDA is not aware of any domestic facility slaughtering horses for any purpose, including for zoos, as of the end of 2010. USDA identified at least three establishments—in Colorado, Nebraska, and New Jersey—that import horsemeat for repackaging and distribution to purchasers in the United States who feed the meat to animals at zoos and circuses.

With the cessation of domestic slaughter, U.S. exports of horses intended for slaughter increased to Canada and Mexico, the current locations of all North American horse slaughtering facilities. As of the end of 2010, Canada had four such facilities, and Mexico three, that were the principal destinations of U.S. horses exported for slaughter. According to USDA officials, this increase in exports began, in part, because shippers were



anticipating the closure of the three horse slaughtering facilities in the United States at that time. From 2006 through 2010, Canadian and Mexican imports increased by 148 percent and 660 percent, respectively, with the total number of horses imported from the United States for slaughter increasing from about 33,000 in 2006 to about 138,000 in 2010. In addition, the total number of horses exported for all purposes, including breeding and showing, also increased from 2006 through 2010, as shown in figure 3. According to USDA officials, some horses exported for purposes other than slaughter were likely “feeder” horses that were ultimately sent to slaughtering facilities at a later time. For example, feeder horses may be sent to a Canadian or Mexican feedlot for fattening before subsequently being sent to a slaughtering facility in that country. The extent to which horses are exported as feeder horses is unknown, according to USDA officials.

**Figure 3: U.S. Exports of Horses Intended for Slaughter and Other Purposes, 2004 through 2010**



Sources: GAO analysis of Department of Commerce Foreign Trade data and USDA Foreign Agricultural Service documents.

Note: U.S. exports of horses intended for slaughter are unofficial estimates because official U.S. export trade data do not specify the quantity or value of horses exported for slaughter. Thus, while official U.S. trade data can be used to determine total U.S. live horse exports (the sum of horses exported for slaughter or other purposes, such as breeding and showing), an estimate of horses intended for slaughter can only be determined using Canadian and Mexican official trade statistics.

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The total number of U.S. horses sent to slaughter in 2006, the last full year of domestic slaughter, was comprised of horses slaughtered domestically (i.e., 104,899, as shown in fig. 2) and those sent for slaughter in Canada or Mexico (i.e., 32,789, as shown in fig. 3)—for a total of 137,688 horses. Taken together, the 137,984 U.S. horses that were sent to slaughter in Canada or Mexico in 2010 is approximately equal to the total number of horses slaughtered in 2006.

Additional certification may affect Canadian and Mexican exports of horsemeat to Europe and, in turn, may affect the future export of horses intended for slaughter from the United States to these countries. In 2010, the European Union began prohibiting the importation of horsemeat from horses treated with certain drugs and requiring countries to document withdrawal periods for horses treated with other drugs before meat from such horses could be imported to the European Union. Those regulations precipitated similar regulations in Canada and Mexico. For example, Canadian requirements went into effect on July 31, 2010, banning specific medications, such as phenylbutazone—the most common anti-inflammatory medication given to horses—and requiring a 180-day withdrawal period for other medications, such as fentanyl, an analgesic. Also, since November 30, 2009, Mexico has required an affidavit by transporters that horses have been free from certain medications for 180 days prior to shipment. Furthermore, effective July 31, 2013, the European Union will require lifetime medication records for all horses slaughtered in non-European Union countries before accepting imports of horsemeat from those countries. According to APHIS and horse industry sources, these requirements could result in shippers certifying that their horses are free of medication residues without having first-hand knowledge or documentation of the horses' status for the previous 180 days.

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### Horse Sales and Prices Have Declined Since 2007, Especially for Lower-Valued Horses

With regard to sales, many of the State Veterinarians said that fewer horse sales have occurred and fewer auctions have operated within their states since 2007, in part, because of lower horse prices and sale commissions since the cessation of domestic slaughter. As a result, they said, horse owners have fewer options for getting rid of horses they no longer want. There also has been reduction in the number of commercial shippers doing business since the cessation of slaughter. In reviewing USDA documentation, we found that more than 110 shippers operated from 2005 through 2006—the 2 years prior to the cessation of domestic slaughter in 2007—and fewer than 50 shippers operated from 2008 through 2009. Some in the horse industry, as well as the State Veterinarians, generally attributed this decrease to the closing of horse auctions around the

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country, reflecting a smaller market and the lower profit margins resulting from the increased costs of transporting horses intended for slaughter to Canada and Mexico.

Horse industry representatives also stated that the closing of domestic slaughtering facilities has dramatically affected the prices of horses. National data on horse prices do not exist, but data from individual auctions are available. For example, the Billings, Montana, horse auction, one of the nation's largest, which also sells horses purchased for slaughter, reported a large increase in the percentage of lower-priced horses sold—the type of horse that typically ends up at slaughter—and a general decrease in sale prices. In May 2005, approximately 25 percent of “loose” horses—less expensive horses that are run through the auction ring without a rider or saddle—sold for less than \$200 at that auction, whereas in May 2010, about 50 percent of loose horses sold for less than that amount.

The economic downturn in the United States that started in December 2007 also likely affected horse prices, according to the academic experts and industry representatives we consulted. Since many U.S. horses are used for recreational purposes, they are generally thought to be luxury goods, and their ownership is sensitive to upturns and downturns in the general economy. Furthermore, some horse sellers could no longer afford to keep their horses, and potential buyers also were not able to offer as much to buy horses or were not in the market to purchase horses at all, according to some industry observers. In particular, a considerable number of horse owners are from lower-to-moderate income households and are less able to withstand the effects of a recession, according to academic experts. For example, one study estimated that up to 45 percent of horse owners have an annual household income of between \$25,000 and \$75,000.<sup>9</sup> According to several State Veterinarians, those owners are more likely to have problems affording the care of their horses during an economic downturn.

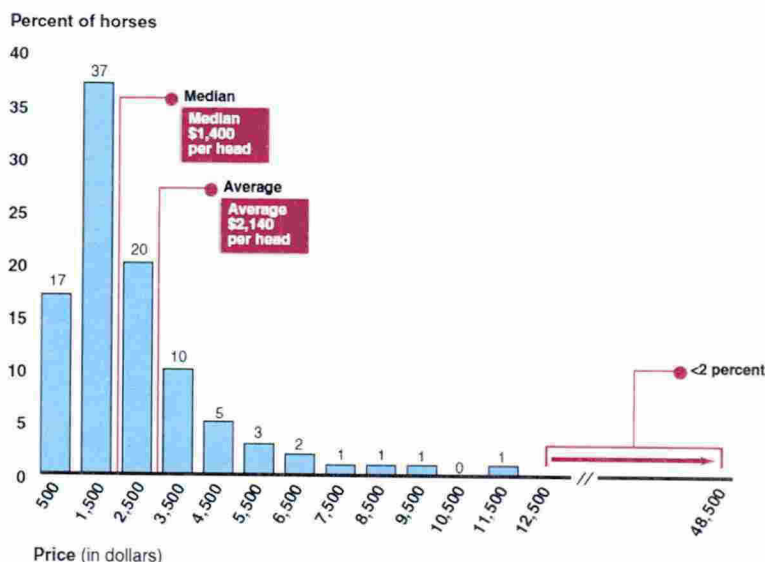
To estimate the impact of the cessation of domestic slaughter on horse prices, we collected price data on more than 12,000 sale transactions from spring 2004 through spring 2010 from three large horse auctions located in the western, southern, and eastern United States. Our analysis of these

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<sup>9</sup>Ahern, J., Anderson, D., Bailey, D., Baker, L., Colette, W., Neibergs, J., North, M., Potter, G., & Stull, C. (2006), “The Unintended Consequences of a Ban on the Humane Slaughter (Processing) of Horses in the United States,” Animal Welfare Council, Inc.

data controlled for the economic downturn and other factors that are auction- and horse-specific, such as a horse's breed/type, age, and gender, which may also affect prices.<sup>10</sup> Horse sale prices ranged from a minimum of \$4 to a maximum of \$48,500, with most of these sales clustered at the lower end of the price range. Figure 4 shows the distribution of these sales prices, including the median and average price per head.

**Figure 4: Distribution of Horse Prices from the Horse Auctions Used in the Analysis, Spring 2004 through Spring 2010**



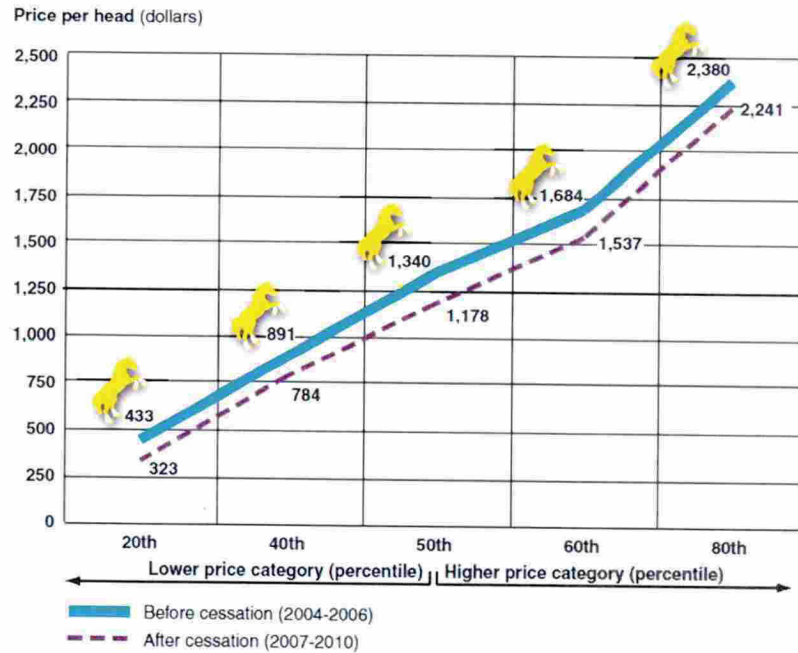
Source: GAO analysis of horse auction sales data.

Our analysis also shows a statistically significant reduction in average sale price across all price categories after the cessation of slaughter in 2007, as shown in figure 5.<sup>11</sup> For example, the average sale price for horses in the lowest price category (20th percentile), dropped by about \$110 per head (from \$433 to \$323), and the average price for the highest price category (80th percentile) dropped by about \$140 per head (from \$2,380 to \$2,241).

<sup>10</sup>The other variables that we considered included season of year of the auction, auction location, and percentage of "no sales" (horses that did not receive a bid acceptable to the seller) for each auction.

<sup>11</sup>For the purpose of this discussion, we use the term "category" to refer generally to the quantiles of price from our analysis.

**Figure 5: Average Horse Prices Before and After Cessation of Horse Slaughter for Each Price Category, Spring 2004 through Spring 2010**



Source: GAO analysis of horse auction data.

Using these data and regression methods to isolate the impact on prices for specific variables, our analysis indicates that the cessation of domestic horse slaughter led to an 8- to 21-percent decline—depending on sale price—in the per head price of horses sold at those auctions.<sup>12</sup> As illustrated in figure 6, we estimate that price reductions were greatest, in percentage terms, for lowest-priced horses, gradually declined as prices increased, and became insignificant for horses in the higher price categories. For example, the average per head price decreased by nearly 21 percent for horses in the lowest price category (20th percentile) and about 8 percent at the median, whereas the price change per head was not statistically significant for higher price categories.

<sup>12</sup>Specifically, we used an econometric model and hedonic quantile regression methods. For a more detailed explanation, see appendix I.

**Figure 6: Estimates of the Effect on Horse Prices from Closing Domestic Slaughtering Facilities and the Economic Downturn for Each Price Category, Spring 2004 through Spring 2010**



Source: GAO analysis of horse auction data.

In contrast to the effects of closing slaughtering facilities—where the percentage decrease in prices for lower-priced horses was greater than that for higher-priced horses—our estimates show that the economic downturn (represented by the change in the average unemployment rate for the region where the auction was held) was associated with a consistent decline of about 5 percent in price across all price categories for those auctions. Table 1 provides our estimates of the price change per head (in dollars and percentage decline) associated with the cessation of slaughter and the economic downturn, along with the average sale price for each price category.



**Table 1: Estimates for Effect of Cessation of Slaughter and Economic Downturn on Horse Sale Prices by Sale Price Category, Spring 2004 through Spring 2010**

Variable	Type of change	Effect by sale price category (percentile)				
		20th	40th	50th (median)	60th	80th
Cessation of slaughter on horse prices (per head)	Price change	-\$125.61	-\$104.24	-\$109.58	<sup>a</sup>	<sup>a</sup>
	Percentage change	-20.93	-10.42	-7.83	<sup>a</sup>	<sup>a</sup>
Economic downturn on horse prices (per head)	Price change	-\$30.90	-\$52.26	-\$67.22	-\$82.09	-\$142.91
	Percentage change	-5.15	-5.23	-4.80	-4.69	-4.76
Upper bound for category (price per head)		\$600	\$1,000	\$1,400	\$1,750	\$3,000

Source: GAO analysis of data from selected horse auctions and the Department of Labor's Bureau of Labor Statistics.

<sup>a</sup>The effect on price was not statistically significant for that category.

These estimates suggest that the closing of domestic horse slaughtering facilities had a significant and negative impact on horse prices at the low-to-mid levels of price at these auctions, while relatively higher-priced horses appear not to have lost their value due to the cessation of slaughter. Appendix II provides further details on the results of our analysis.

## Horse Welfare Has Reportedly Declined, Although the Extent Is Unknown, Straining the Resources of State and Local Governments, Tribes, and Animal Welfare Organizations

Horse welfare in the United States has generally declined since 2007, as evidenced by a reported increase in horse abandonments and an increase in investigations for horse abuse and neglect. The extent of the decline is unknown due to a lack of comprehensive, national data, but state officials attributed the decline in horse welfare to many factors, but primarily to the cessation of domestic slaughter and the U.S. economic downturn. Abandoned, abused, and neglected horses present challenges for state and local governments, tribes, and animal welfare organizations. In response, some states and tribes have taken several actions to address these challenges and the demand on their resources.

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## Cases of Horse Abandonments, Abuse, and Neglect Have Reportedly Increased Since 2007

In interviewing the 17 State Veterinarians, we asked whether the states had data for cases of horse abandonments, abuse, and neglect. Most veterinarians from these states, including some with the largest horse populations—California, Florida, and Texas—said they do not routinely collect such data because, in part, their resources are limited and jurisdiction of animal welfare is usually a local (e.g., county) responsibility. Nearly all the State Veterinarians, however, reported anecdotes indicating that cases of abandonments and abuse or neglect have increased in recent years. For example, several State Veterinarians, including those from California, Florida, and Texas, reported an increase in horses abandoned on private or state park land since 2007, although specific data quantifying those abandonments were not available.

In addition, states that do collect some data reported increases in abandonments or investigations of abuse and neglect since the cessation of domestic slaughter. For example, data from Colorado showed a 50-percent increase in investigations for abuse and neglect from 1,067 in 2005 to 1,588 in 2009. Similarly, data from Indiana indicated that horse abuse and neglect investigations more than doubled from 20 in 2006 to 55 in 2009. In addition, organizations representing localities, especially counties and sheriffs, have reported an increasing problem. For example, the Montana Association of Counties reported that the number of horses being abandoned by their owners has rapidly increased since horse slaughter for human consumption was halted in the United States, but the association did not have specific data. In addition, the National Association of Counties reported that the increasing abandonment problem is not exclusive to Montana or the West but is happening nationwide.

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## State Veterinarians Attributed Decline in Horse Welfare Primarily to Cessation of Slaughter and Economic Downturn, but Representatives of Animal Welfare Organizations Question Cessation's Impact

We also asked the 17 State Veterinarians whether horse welfare, in general, had improved, declined, or remained about the same in their states over the last 5 years. Without exception, these officials reported that horse welfare had generally declined, as evidenced by a reported increase in cases of horse abandonment and neglect. They most frequently cited two factors that contributed to the decline in horse welfare—the cessation of domestic slaughter in 2007 and the economic downturn—although they generally were careful not to pin the decline on any single factor. Other factors that they generally cited include poor weather conditions (e.g., drought in western states); the cost of horse disposal methods (e.g., veterinarian-assisted euthanasia); the increasing costs of feeding and caring for horses; and the lack of auction markets to sell horses.



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Among the factors affecting horse owners, the State Veterinarians said a horse owner's decision to abandon a horse generally related to (1) cessation of domestic slaughter, (2) poor economic conditions, and (3) low horse prices or lack of sale opportunities. They also said the factors most often related to a horse owner's neglect of a horse were (1) poor economic conditions, (2) the cost of horse care and maintenance, and (3) lower horse prices. Several State Veterinarians pointed out that, in their professional experience, very few owners directly physically abuse their horses, which would be a crime. More common, however, were owners who neglected the feeding and proper care—such as providing farrier services (i.e., hoof care) and vaccinations—of their horses. Thus, based on the information these officials provided, the primary drivers for the increase in abandonment and neglect cases are the cessation of domestic slaughter, causing lower horse prices and difficulty in selling horses, and the economic downturn, affecting horse owners' ability to properly care for their animals. As discussed, our analysis also showed that the cessation of slaughter and the economic downturn generally reduced horse prices at our selected auctions; in particular, the cessation affected prices for the low-to-mid range priced horses that are more frequently abandoned and neglected. Furthermore, regarding neglect, some State Veterinarians, noting that people are more inclined to take care of that which has value, said that the drop in horse prices affected some owners' interest in caring for their animals, especially if their financial situation had declined.

With regard to the entities most affected by the increase in abandoned and neglected horses, the State Veterinarians generally said that counties, including sheriffs, bear the responsibility for investigating potential cases affecting horse welfare. Many State Veterinarians, particularly from western states, indicated that their offices did not have the resources to support the counties beyond providing expert veterinary advice regarding conditions of abandoned and neglected horses, such as opining on a horse's nutritional status (known as "body scoring").

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**State and Local  
Governments, Tribes, and  
Animal Welfare  
Organizations Are Affected  
by Neglected and  
Abandoned Horses, as Is  
the Federal Government**

State and local governments, tribes, and animal welfare organizations, especially horse rescues, are facing growing pressures to care for abandoned and neglected horses at a time of economic recession and tight budgets. According to the State Veterinarians, counties and animal welfare organizations bear the costs of collecting and caring for abandoned horses, while county governments generally bear the costs of investigating reports of neglect. These officials said horse rescue operations in their states are at, or near, maximum capacity, with some taking on more horses than they can properly care for since the cessation of domestic slaughter. One State Veterinarian added that his office is reluctant to pressure horse rescues in his state to take on additional animals because of this problem, even though alternatives are lacking. Some State Veterinarians also described situations in which counties and sheriff departments were reluctant to investigate reports of abandoned or neglected horses because these jurisdictions lacked resources to deal with the consequences of finding such animals. In some cases, these officials said local jurisdictions may lack the resources even to initiate such investigations, let alone to take possession of and care for these animals. And in cases where an investigation results in horse seizures, local jurisdictions may have to appeal for the public's help in caring for the animals. For example, the Montana State Veterinarian and his staff described a recent situation in their state involving the seizure of hundreds of neglected horses, many of which had low body scores and would not have survived the winter without intervention. These horses were seized from a ranch owner near Billings, Montana, in January 2011 who was no longer able to afford their care. Because of the strain placed on state and county resources to care for so many animals, these jurisdictions had to seek private donations of hay to feed these horses. Figure 7 shows some of the horses seized in this case.

**Figure 7: A Band of Horses, Some of Hundreds That Have Been Neglected on Montana Ranchland and Seized by the County after the Collapse of Their Owner's Ranching Company**



Source: Larry Mayer/Billings Gazette. Photo used with permission.

Tribes also reported increases in abandonments on their land, exacerbating the overpopulation of horse herds on tribal lands. According to 2009 data from the Northwest Tribal Horse Coalition (now the National Tribal Horse Coalition), the number of horses on its tribal lands exceeded 30,000 horses. When we met with representatives of tribes in the western United States, they showed us significant degradation of their lands as a result of the over-grazing by large populations of wild horses, as shown in figure 8. They explained that the increase in abandoned horses on their lands has compounded the challenge of restoring native and religiously-significant species of plants to their land—an effort often paid for, in part, by the federal government. Moreover, domesticated horses abandoned on public lands generally have poor survival prospects, according to officials from the Department of the Interior's Bureau of Land Management (BLM). These horses are unfamiliar with which wild plants are edible and are likely to be shunned or hurt by wild horses. These abandoned horses may also introduce diseases to wild herds.

Figure 8: Wild Horse Herd on Degraded Land Owned by the Yakama Nation in Washington State



Source: GAO.

The effects of the increasing number of abandoned or neglected horses have been felt by local animal welfare organizations as well—in particular, the horse rescues and local societies for the prevention of cruelty to animals that work with local officials to place such horses, according to the State Veterinarians. The total number of rescues and their capacities is unknown because there is no national registry or association for horse rescues. However, both the National Association of Counties and the Unwanted Horse Coalition estimated that the nationwide capacity of rescue facilities is about 6,000 horses. They also reported that the vast majority of these facilities are already full. Some State Veterinarians told us that some rescue organizations have taken on more horses than they can properly care for, especially in an economic environment in which donations have declined; as a result, horses at some of these organizations' facilities have been seized. For example, it has been reported that horse rescues in California, Florida, New York, and West Virginia have recently

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had their animals seized by local authorities because they were not properly caring for them, and others in New Hampshire and Pennsylvania closed due to financial difficulties.

In addition, the increase in unwanted domesticated horses available for sale or being abandoned on public lands is affecting the federal government's ability to manage wild horse and burro populations. Most of these wild animals are found on lands managed by BLM and USDA's Forest Service in the western United States.<sup>13</sup> From 1971 through 2007, BLM removed over 267,000 wild horses and burros from these lands, and during the same period, approximately 235,700 of these animals were adopted by the public under a BLM program that promotes these adoptions. As we reported in 2008, BLM has, however, experienced a steady decline in adoptions in recent years, which agency officials attributed, in part, to the large number of domesticated horses flooding the market.<sup>14</sup> More recently, BLM officials said that annual adoptions had fallen from about 8,000 in 2005 to about 3,000 in 2010. In an October 2010 Web message, the BLM Director estimated that the number of horses and burros on lands the agency manages exceeds by about 12,000 the number that would allow these lands to remain sustainable for other uses and species.<sup>15</sup> According to BLM officials, in addition to natural reproduction in wild horse and burro herds, the increasing number of domesticated horses being abandoned on public lands has contributed to this overpopulation problem.

Other officials, including those from animal welfare organizations, questioned the relevance of the cessation of domestic slaughter to the rise in abandoned and neglected horses, which they attributed more to the economic downturn. For example, in March 2010, Animal Welfare Institute representatives said that since a 1998 California ban on dealing in horses intended for slaughter, their organization has offered a \$1,000 reward for

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<sup>13</sup>BLM estimates, as of October 2010, that it is managing about 38,400 free-roaming wild horses and burros on these lands, and it also is holding about 37,000 additional horses and burros removed from these lands in short- and long-term holding facilities. BLM estimates its feeding and care of animals in holding facilities cost the federal government more than \$36 million annually, more than half the wild horse and burro program's budget in fiscal year 2010.

<sup>14</sup>GAO, *Bureau of Land Management: Effective Long-Term Options Needed to Manage Unadoptable Wild Horses*, GAO-09-77 (Washington, D.C.: Oct. 9, 2008).

<sup>15</sup>This Web message is available at [http://www.blm.gov/wo/st/en/prog/wild\\_horse\\_and\\_burro/national/about/director.print.html](http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/national/about/director.print.html).

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notification of abandoned horses but has never received a tip. In addition, the Humane Society of the United States and the United Animal Nations reported that there has been no documented rise in abuse and neglect cases in California since the 1998 ban. United Animal Nations also reported there was no documented rise in abuse and neglect cases in Illinois following the 2-year closure of the horse slaughtering facility in that state in 2002. Furthermore, Humane Society of the United States officials said that owners who abandon horses are going to abandon them regardless of having the option for domestic slaughter, adding that there were instances of horse abandonment near domestic horse slaughtering facilities before they closed. These officials acknowledged that there are no good data on horse abandonments but noted an increase in abandonments of all kinds of domesticated animals as the economy worsened.

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### States and Tribes Have Taken a Variety of Actions Related to Horse Welfare and Slaughter

Some states took actions related to horse welfare and slaughter even before the cessation of domestic slaughter in 2007. For example, in 1998, California made it illegal to export horses for the purpose of having them slaughtered for human consumption outside the state. Specifically, California law makes it unlawful for any person to possess; to import into or export from the state; or to sell, buy, give away, hold, or accept any horse with the intent of killing or having another kill that horse, if that person knows or should have known that any part of that horse will be used for human consumption. Several state officials told us that this ban is difficult to enforce because it may be difficult to show when an owner knew or should have known that a buyer intended that animal for slaughter. For example, if an owner transports a horse to an auction in another state (e.g., Montana or Texas), it may be difficult to prove that the owner specifically intended to sell the horse for slaughter or should have known that the buyer of the horse intended to sell the horse for slaughter.

In addition, since 2007, states and tribes have taken a variety of legislative or other actions related to horse welfare or slaughter. For example, in 2009 Montana passed a law that allows horse owners to surrender horses that they cannot afford to maintain to the state at a licensed livestock market without being charged with animal cruelty. Also, Colorado authorized the inclusion of a checkbox on state income tax return forms allowing taxpayers to make a contribution to the Colorado Unwanted Horse Alliance. In authorizing the program, the Colorado legislature found that the number of unwanted horses is increasing; most horse rescue facilities are operating at capacity and have limited ability to care for additional horses; and incidences of horse abuse and neglect are rising. In



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addition, Kentucky passed a law in the spring of 2010 creating the Kentucky Equine Health and Welfare Council and charged it with developing regional centers of care for unwanted, abused, neglected, or confiscated equines; creating a system of voluntary certification of equine rescue and retirement operations; and suggesting statutory changes affecting equine health, welfare, abuse, and neglect issues. Also, in 2009, the National Congress of American Indians and the Northwest Tribal Horse Coalition passed resolutions supporting domestic slaughter to manage overpopulated horse herds. A number of the 17 states that we examined have also enacted laws related to horse welfare and slaughter since the cessation of domestic slaughter. For example:

- Arkansas, Oklahoma, Utah, and Wyoming passed resolutions urging Congress to facilitate the resumption of horse slaughtering in the United States and oppose federal legislation that would ban domestic slaughter. North Dakota and South Dakota passed similar resolutions urging Congress to reinstate and fund federal inspection programs for horse slaughter and processing.
- Montana passed a law that would make it easier to establish a horse slaughtering facility by making it harder for those opposing such a plant to get an injunction against it while challenging various permits that the plant would need to operate. In his 2009 testimony in support of the bill, the chair of Montana's Farm Bureau cited rising numbers of unwanted horses and associated costs.
- Wyoming amended its existing law to provide that strays, livestock, and feral livestock, including horses, may be sent to slaughter as an alternative to auction or destruction. The legislative changes also provided that the state could enter into agreements with meat processing plants whereby meat from livestock disposed of by slaughter could be sold to state institutions or nonprofits at cost or to for-profit entities at market rate.

Several states are seeking to reopen domestic horse slaughter facilities, under a provision of the Food, Conservation, and Energy Act of 2008, which authorized USDA to establish a new voluntary cooperative program under which small state-inspected establishments would be eligible to ship meat and poultry products in interstate commerce. USDA recently finalized a rule to implement the program, but USDA officials said that the rule does not include horsemeat, because recent appropriations legislation has prohibited the use of federal funds for inspecting horses prior to slaughter. And although, under the proposed program, the inspections

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would be done by state officials, federal law requires USDA to reimburse the state for at least 60 percent of the associated costs. However, as noted by USDA officials, the prohibition in appropriations legislation against using federal funds for inspecting horse at slaughter would preclude these reimbursements. USDA officials said the same issue would preclude tribal slaughtering facilities from shipping horsemeat in interstate or international commerce as well.

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## USDA's Oversight of the Welfare of Horses Transported for Slaughter Is Complicated by Three Challenges

USDA faces three challenges in its oversight of the welfare of horses during their transport for slaughter. First, APHIS faces several specific management challenges in implementing the transport program. Second, legislative prohibitions on using federal funds for inspecting horses prior to slaughter impede USDA's ability to ensure horse welfare. Third, the cessation of domestic slaughter has diminished APHIS's effectiveness in overseeing the transport and welfare of horses intended for slaughter.

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### Management Challenges Affect APHIS's Implementation of the Slaughter Horse Transport Program

Several management challenges are affecting APHIS's implementation of the transport program. These challenges include (1) delays in issuing a final rule to give the agency greater oversight over horses transported for slaughter to protect their welfare; (2) limited staff and funding that complicates the agency's ability to ensure the completion, return, and evaluation of owner/shipper certificates; and (3) a lack of current, formal agreements with Canadian, Mexican, and state officials whose cooperation is needed for program implementation.

### APHIS Has Not Issued a Final Rule to Better Protect Horses Transported for Slaughter

APHIS's transport regulation sets minimum care standards to protect horse welfare, but it applies only when the horses are being moved directly to slaughtering facilities, at which point shippers designate the horses as "for slaughter" on an owner/shipper certificate and move the horses directly to slaughtering facilities. Consequently, the regulation does not apply to horses that are moved first to an assembly point, feedlot, or stockyard before going to slaughter. For example, a horse's journey to slaughter may have covered several states, from point-of-purchase at an auction to an assembly point, such as a farm; from the assembly point to a feedlot or stockyard; and from the feedlot or stockyard to a point near a slaughtering facility or a border crossing where the slaughter designation was first made.



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In reviewing a generalizable sample of nearly 400 owner/shipper certificates from before and after cessation of domestic slaughter in 2007, we found that shippers usually designated horses as “for slaughter” on the final leg of their journey to a slaughtering facility, as allowed under the current regulation. For example, prior to cessation in 2007, shippers sometimes designated horses near the U.S. facility in which they would be slaughtered. Specifically, we found cases in which horses shipped to the slaughtering facility in DeKalb, Illinois, were designated for slaughter at a point just a few miles from the plant. Similarly, since cessation in 2007, shippers sometimes made this designation near border crossings with Canada or Mexico. For example, since cessation, we found shipments of horses being designated for slaughter in Shelby, Montana, about 36 miles from the border crossing into Canada and in El Paso, Texas, about 10 miles from where they cross the border into Mexico. According to APHIS officials, in virtually all of these cases, without a “for slaughter” designation, it is likely that before reaching these designation points, the horses already had traveled for long distances within the United States without the protection of the APHIS transport regulation to ensure their humane treatment. For example, some of the horses may have been transported in double-deck trailers intended for smaller livestock animals; as discussed, the APHIS transport regulation prohibits the use of this type of trailer after the designation for slaughter is made.

To address this issue, APHIS proposed, in November 2007, to amend the existing transport regulation to extend APHIS’s oversight of horses transported for slaughter to more of the transportation chain that these horses pass through. The proposed rule defines *equine for slaughter* as an equine transported to intermediate assembly points, feedlots, and stockyards, as well as directly to slaughtering facilities.<sup>16</sup> The current regulation does not define equine for slaughter and only applies to those equines being transported directly to slaughtering facilities. APHIS has experienced repeated delays in issuing a final rule that would extend APHIS’s oversight of horses being transported for slaughter. According to USDA officials, the delay is the result of a number of factors, including, competing priorities and the need to address substantive, public comments on the proposed rule that resulted in reclassifying it as

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<sup>16</sup>This proposed regulatory change is consistent with the definition of *equine for slaughter* in the Federal Agriculture Improvement and Reform Act of 1996.

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significant under Executive Order 12866.<sup>17</sup> As of June 2011, USDA officials said they anticipate issuing the final rule by the end of calendar year 2011.

APHIS officials noted that this change to the transport regulation could help address another issue as well. Specifically, the regulation currently does not apply to shippers transporting horses to Canada as feeder horses.<sup>18</sup> As discussed, some U.S. horses exported for purposes other than slaughter (i.e., not designated for slaughter on an owner/shipper certificate) may be feeder horses that are ultimately sent to slaughtering facilities at a later time. According to APHIS officials, the number of feeder horses has likely grown with the increase in total horse exports to Canada since 2007. Because feeder horses are not designated for slaughter before crossing the border, they are not covered by the transport regulation at any point in their journey. If the transport regulation is amended, however, as APHIS has proposed, the designation “equine for slaughter” would apply to these animals during the leg of their trip from the U.S. auction where they were purchased to the border crossing, including any intermediate stops within the United States at assembly points, feedlots, and stockyards. Such a designation would place those animals under the protection afforded by APHIS’s oversight. APHIS officials also noted that the provision of the 1996 Farm Bill authorizing the transport regulation is the only federal statute that regulates the transportation of horses, and they commented on the irony that horses designated for slaughter are provided greater protection, under current federal law and the transport regulation, than other horses in commercial transit.

#### Limited Staff and Funding Complicates Program Implementation

Over the past 6 fiscal years, the transport program’s annual funding has varied, generally declining from a high of over \$306,000 in fiscal year 2005 to about \$204,000 in fiscal year 2010. This funding primarily provides for the salaries and expenses of two staff, one of whom is the national compliance officer, who inspects conveyances and owner/shipper

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<sup>17</sup>Executive Order 12866 defines significant regulatory actions as those that are likely to result in a rule that may, among other things, raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the order. Such rules require additional review by the Office of Information and Regulatory Affairs within the Office of Management and Budget.

<sup>18</sup>Shippers may send horses across the border as “feeder” horses to a feedlot to add weight to these animals, enhancing their slaughter value. Moreover, as a practical matter, because of the European Union’s new restrictions on drug residues in horsemeat, it may be necessary to hold U.S. horses at a Canadian feedlot for several months before slaughtering to ensure they are purged of drug residues.

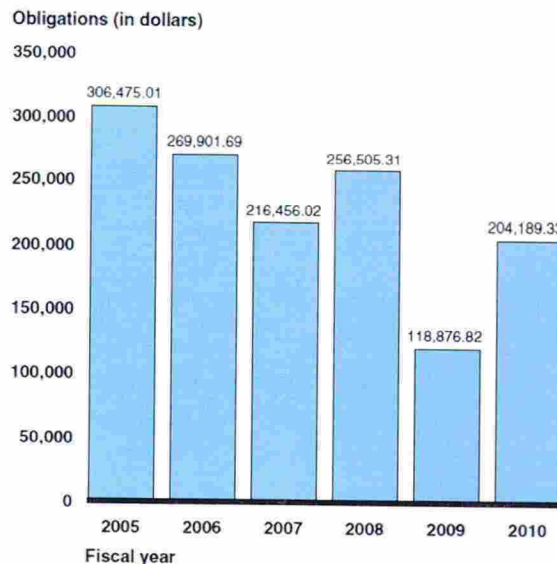
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certificates for compliance with the transport regulation, with the remainder going to travel costs.<sup>19</sup> The two program officials stated that the program's limited funding, particularly for travel, has significantly curtailed their ability to provide coverage at border crossings and to work with shippers and inspectors in foreign slaughtering facilities to ensure compliance with the transport regulation. For example, with one compliance officer, the program cannot adequately cover the numerous border crossings on the Canadian and Mexican borders through which shipments of horses intended for slaughter move. In April 2011, transport program officials said they recently had begun training inspectors in APHIS's Western region and Texas area office to assist the program at southern border crossings by, in part, collecting owner/shipper certificates and returning them to APHIS headquarters. However, these officials said they did not have a written plan or other document that describes this initiative, including the number of staff to be involved, their anticipated duties to support the transport program, and the time frames for implementing the initiative. Hence, while this appears to be a positive step, we were unable to evaluate the potential usefulness of this initiative. Figure 9 provides information on the transport program's funding for fiscal years 2005 through 2010.

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<sup>19</sup>The Compliance Officer's duties include inspecting paperwork and conveyances at U.S. border crossings and other inspection points and visiting auctions to work with owner/shippers to gain compliance with the regulation.

**Figure 9: Slaughter Horse Transport Program's Budget Obligations, Fiscal Years 2005 through 2010**



Source: USDA's Slaughter Horse Transport Program.

According to program officials, the reduction in funds in 2009 was the result of a cut in travel funds that were allocated to other APHIS programs. The program officials added that the seesaw nature of the program's funding, as well as the fact the program has just two staff, has affected their ability to ensure compliance with, and enforce, the transport regulation and contributed to year-to-year variations in the number of violations found. In addition, because of limited staff and funding, APHIS stopped entering information from owner/shipper certificates into an automated database in 2005. Agency officials said that the database was used in the early years of the transport program to document demographic information, such as the identity of shippers and origin of horses they shipped. However, after several years, this information was well established, and there was no need to continue to collect data for this purpose. They also said that the database did not provide beneficial information for protecting horse welfare that justified the cost of maintaining the database. Nonetheless, automating the certificate data would make it easier for the agency to analyze them to, for example, identify potential problem areas for management attention and possible enforcement action, such as patterns of violations or other problems associated with particular shippers, border crossings, or slaughtering facilities. It would also allow the agency to easily identify buying trends and common shipping routes. Furthermore, automating data

Uneven Cooperation with  
Canadian, Mexican, and State  
Officials Impedes Oversight

from the certificates on the number of horses in each shipment could potentially provide USDA a more accurate count of the number of U.S. horses exported for slaughter. At present, to estimate the number of horses exported for this purpose, USDA's Foreign Agricultural Service pieces together Canadian and Mexican data on horses imported for slaughter and makes certain extrapolations to arrive at an approximate number since no official U.S. trade data exist on horses exported for slaughter.

Federal internal control standards call for agencies to obtain, maintain, and use relevant, reliable, and timely information for program oversight and decision making, as well as for measuring progress toward meeting agency performance goals.<sup>20</sup> Furthermore, the Office of Management and Budget's implementing guidance directs agency managers to take timely and effective action to correct internal control deficiencies.<sup>21</sup> APHIS's lack of a reliable means of collecting, tracking, and analyzing owner/shipper certificates constitutes an internal control weakness and leaves the agency without key information and an important management tool for enforcement of the transport regulation.

With the cessation of domestic slaughter and the transport program's limited staff and funding, APHIS relies on the cooperation of officials from Canada and Mexico working at border crossings and in their countries' slaughtering facilities to help the agency implement the transport regulation. APHIS has sought similar cooperation from officials working for the Texas Department of Agriculture regarding horses exported through Texas border crossings. The effectiveness of these cooperative arrangements has been uneven, in part because APHIS lacks current, formal written agreements with its foreign and state counterparts to better define the parameters of this cooperation and ensure continuity over time as the personnel involved change. We have previously reported that by using informal coordination mechanisms, agencies may rely on relationships with individual officials to ensure effective collaboration and that these informal relationships could end once personnel move to their next assignments.<sup>22</sup>

<sup>20</sup>GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (Washington, D.C.: November 1999).

<sup>21</sup>Office of Management and Budget, Executive Office of the President, OMB Circular No. A-123, *Management's Responsibility for Internal Control* (Dec. 21, 2004).

<sup>22</sup>GAO, *National Security: Key Challenges and Solutions to Strengthen Interagency Collaboration*, GAO-10-822T (Washington, D.C.: June 9, 2010).

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Regarding Canada, representatives of APHIS and the Canadian Food Inspection Agency (CFIA) signed a letter of intent in October 2002 outlining their shared responsibilities for enforcement of the transport regulation. Each country pledged to help the other enforce its regulations. For example, to assist APHIS, CFIA agreed to ensure, either at points of entry or slaughtering facilities, the following regarding shipments of U.S. horses to Canada for slaughter:

- health certificates for the horses are endorsed by USDA-accredited veterinarians within the 30 days prior to export;
- horses are clinically healthy, fit for travel, and transported humanely to the points of entry;
- owner/shipper certificates are properly completed, including the date, time, and location the horses were loaded;
- horses are listed correctly on the owner/shipper certificate, so that for example, the backtags on the horses match the backtags listed on the certificate;
- an ante-mortem inspection of each horse is performed;
- date and time the shipment arrived at the facility is noted on the certificate; and
- copies of all relevant documents (e.g., owner/shipper certificates) are returned to APHIS each month.

APHIS officials said they rely on owner/shipper certificates, properly completed by shippers and CFIA officials, as appropriate, and returned by CFIA to APHIS for compliance and enforcement purposes. For example, APHIS needs information on the timing of the loading and off-loading of a shipment of horses to assess whether a shipper complied with regulatory requirements related to the amount of time a shipment is in transit. Figure 10 highlights sections of the owner/shipper certificate that are to be completed by shippers or Canadian or Mexican officials.

Figure 10: Sections of USDA Owner/Shipper Certificate to Be Completed by Shippers or Canadian or Mexican Officials

**Completed by shippers**

UNITED STATES DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE VETERINARY SERVICES		OWNER/SHIPPER CERTIFICATE FITNESS TO TRAVEL TO A SLAUGHTER FACILITY (Please type or print in ink)
TIME HORSES LOADED ON CONVEYANCE	DATE	CITY AND STATE WHERE HORSES WERE LOADED ON CONVEYANCE
VEHICLE LICENSE NO. AND DRIVERS NAME		NAME OF AUCTION/MARKET
CONSIGNOR (OWNER/SHIPPER) NAME		CONSIGNEE (RECEIVER/DESTINATION) NAME
STREET ADDRESS		STREET ADDRESS
CITY, STATE, AND ZIP CODE		CITY, STATE, AND ZIP CODE
AREA CODE AND TELEPHONE NO.		AREA CODE AND TELEPHONE NO.
<p>CHECK THE BOX THAT INDICATES THE FOLLOWING IS TRUE FOR ALL THE HORSES ON THIS CERTIFICATE</p> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Pregnant mares are not likely to foal (give birth) during the trip.  <input type="checkbox"/> Foals are older than 6 months of age.                 </div> <div> <input type="checkbox"/> Horses are able to bear weight on all 4 limbs.  <input type="checkbox"/> Horses are not blind in both eyes.                 </div> <div> <input type="checkbox"/> Horses are able to walk unassisted.                 </div> </div>		

**Completed by Canadian or Mexican officials**

CANADIAN FOOD INSPECTION AGENCY (CFIA)	
EST.	
DATE	
TIME	
DIRECCION GENERAL DE INSPECCION EN FRONTERAS (DGIF)	
EST.	
DATE	
TIME	

Source: USDA's Animal and Plant Health Inspection Service.

Note: Direccion General de Inspeccion en Fronteras is the agency within Mexico's agriculture department that conducts inspections at the border.

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In reviewing a generalizable sample of certificates returned by CFIA from 2005 through 2009, however, we found instances in which certificates were not properly completed by either the shipper or CFIA officials. Based on the results of our review, we estimate that about 52 percent of certificates were missing key information that should have been filled in by either the shipper (e.g., loading date and time, or certification that the horses were fit for transport) or CFIA (e.g., arrival date and time, or slaughtering facility identification). In addition, we estimate that about 29 percent of certificates returned to APHIS were missing some or all of the information to be provided by CFIA officials at the slaughtering facility.<sup>23</sup>

Moreover, in our review of these certificates we noted that the extent to which they were returned incomplete from CFIA to APHIS increased over time. For example, from 2005 through 2006, the 2 years prior to the cessation of domestic slaughter in the United States, we estimate that about 48 percent of certificates were missing key information that should have been completed by either the shippers or CFIA officials. However, from 2008 through 2009, the 2 years after the cessation, we estimate that about 60 percent of certificates were missing key information.<sup>24</sup> This increase suggests that the growth in U.S. horse exports for slaughter since the cessation has been accompanied by an increase in problems with owner/shipper certificates needed by APHIS for enforcement purposes. However, APHIS and CFIA have not revisited this agreement since 2002 to reflect changes since the cessation of slaughter in 2007, when the volume of horses exported to Canada increased significantly and APHIS became more dependent upon cooperation from Canadian border officials and CFIA inspectors in slaughtering facilities.

Regarding Mexico, APHIS lacks a written agreement with its relevant counterpart, Mexico's Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA), to promote cross-border cooperation.<sup>25</sup> APHIS officials said that they drafted an agreement in 2002, similar to the one with CFIA, and that APHIS had contacts with SAGARPA

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<sup>23</sup>All estimates from our review of owner/shipper certificates are subject to sampling error. The 95-percent confidence intervals for our estimates of 52 percent and 29 percent are 44 to 61 percent and 21 to 36 percent, respectively.

<sup>24</sup>The 95-percent confidence intervals for our estimates of 48 percent and 60 percent are 28 to 69 percent and 49 to 71 percent, respectively.

<sup>25</sup>In English, this would be the Secretary of Agriculture, Livestock Production, Rural Development, Fishery, and Food; this is Mexico's agriculture department.



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about finalizing it during 2002 and 2003. However, according to APHIS officials, the Mexican agency did not provide a response consenting to the agreement, and APHIS has not renewed the effort to get an agreement since 2003. Thus, these officials said, enforcing the transport regulation along the southern border is more difficult than along the northern border with Canada. Moreover, while shippers on the northern border can drive their conveyances directly into Canada, U.S. shippers generally are not insured to travel into Mexico. As a result, shippers unload their horses before crossing the border, where SAGARPA officials inspect the horses. The horses are subsequently loaded onto a Mexican conveyance for transport to a Mexican slaughtering facility.

In the absence of a formal, written agreement between APHIS and SAGAPRA or the Texas Department of Agriculture, APHIS does not receive official cooperation from Mexican or Texas officials. As a consequence, owner/shipper certificates may not be correctly filled out by the shippers and collected, completed, and returned to APHIS from either the border crossing or the Mexican slaughtering facility with information about shipment dates and times and horse conditions. In some cases, APHIS had an informal understanding with SAGARPA officials at a border crossing that they would collect and return the certificates to APHIS. In other cases, at Texas border crossings, employees of the Texas Department of Agriculture informally cooperated with APHIS by collecting and returning the certificates to the agency and alerting it to possible violations of the transport regulation. However, these informal arrangements have not been sustained over time and have not been sufficient to ensure the return of certificates to APHIS. For example, as of March 2011, APHIS transport program officials said they have not received any owner/shipper certificates from Texas border crossings in more than a year. Although some U.S. horses intended for slaughter are exported through a border crossing in New Mexico, the majority of horses bound for Mexico pass through the Texas crossings.<sup>26</sup> Thus, program officials said their ability to enforce the transport regulation for shipments of horses exported through these border crossings has been severely hampered.

In addition to the more recent problem with certificates not being returned from the Texas border crossings, we reviewed a generalizable sample of owner/shipper certificates returned from the southern border from 2005

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<sup>26</sup>Regarding the New Mexico border crossing, the transport program relies on the help of the APHIS Port Veterinarian to collect and return owner/shipper certificates.

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through 2009 to determine the extent to which they were correctly completed by shippers and SAGARPA officials. Based on the results of our review, we estimate that about 48 percent of these certificates from 2005 through 2009 were missing key information to be provided by either shippers or SAGARPA officials. Moreover, about 54 percent of certificates from 2008 through 2009 were missing such information, suggesting an increase in problems associated with the recent increase in exports to Mexico of horses intended for slaughter. In addition, we estimate that about 39 percent of certificates returned to APHIS were missing some or all information, including the date and time the horses were unloaded at the border, to be provided by SAGARPA officials.<sup>27</sup>

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### Legislative Prohibitions Impede USDA's Ability to Ensure Horse Welfare

Legislative prohibitions have impeded USDA's ability to protect horse welfare since fiscal year 2006. First, as discussed, appropriations bills for fiscal years 2006 through 2010 have prohibited APHIS from using federal funds to inspect horses being transported for slaughter. As a result, according to agency officials, the transport program's compliance officer may only inspect the owner/shipper certificates associated with the shipment of horses and the conveyance on which the horses are transported. That is, only while inspecting these items may the officer also incidentally observe any potential violations of the transport regulation regarding the physical condition of the horses because of the annual prohibition on the expenditure of federal funds on inspecting horses. The compliance officer said this makes it difficult to ensure that horses are transported humanely to slaughter and to collect information on potential violations that is needed for APHIS to pursue enforcement actions. For example, while inspecting a conveyance being used to transport horses intended for slaughter in 2010, the compliance officer found that a mare in the shipment had given birth to a foal. Because the transport regulation requires shippers to verify that horses are not likely to give birth during shipment, the birth of a foal in transit represented a potential violation. However, because of the prohibition on using funds to inspect horses, the officer was unable to inspect the horses to determine which mare had given birth. Thus, the opportunity was lost to document a potential violation of the regulation by the shipper. Moreover, according to the officer, compliance probably has suffered because shippers are aware that transport program officials cannot

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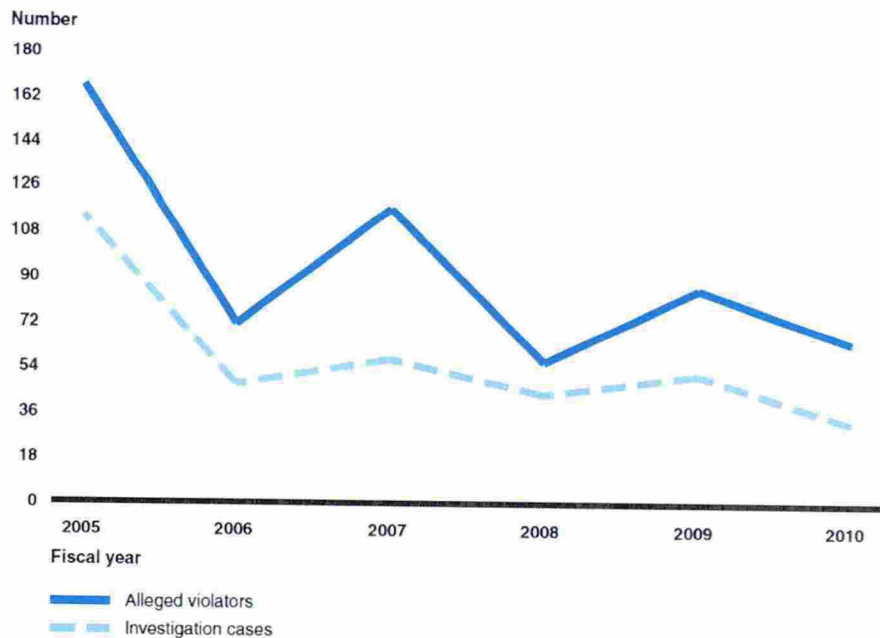
<sup>27</sup>The 95-percent confidence intervals for our estimates of 48 percent, 54 percent, and 39 percent are 36 to 60 percent, 37 to 71 percent, and 27 to 50 percent, respectively.

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inspect horses in transit to substantiate potential violations. According to APHIS officials, another impediment to their investigations of potential violations of the transport regulation is USDA's lack of subpoena authority to access the records of alleged violators or to compel persons to testify in administrative hearings and to produce documentary evidence for such hearings. Specifically, although USDA has such authority under several other APHIS-administered statutes (e.g., Animal Health Protection Act, Horse Protection Act, and Plant Protection Act), it does not have this authority under the authorizing legislation for the transport regulation—the 1996 Farm Bill. According to APHIS officials, the agency would welcome the addition of subpoena authority to promote enforcement of the slaughter horse transport regulation.

Second, USDA also has been prohibited from using federal funds to inspect horses prior to slaughter for human consumption at slaughtering facilities. As discussed, the Federal Meat Inspection Act requires inspection of all cattle, sheep, swine, goats, and horses before they are slaughtered and processed into products for human food and to ensure that meat and meat products from these animals are unadulterated, wholesome, and properly labeled. Prior to the appropriations prohibition, and before the cessation of domestic slaughter, FSIS officials in U.S. slaughtering facilities inspected the condition of horses before slaughter as well as the horsemeat after slaughter. The prohibition on the use of funds for required inspections has, in effect, banned the slaughter of horses for food in the United States, and, as a consequence, moved this slaughter to other countries where USDA lacks jurisdiction and where the Humane Methods of Slaughter Act does not apply. Therefore, USDA is less able to ensure the welfare of horses at slaughter. And, as was the case with horses in transit to slaughter, APHIS officials speculated that compliance with the transport regulation has suffered because shippers are aware that the program can no longer leverage the assistance of USDA personnel in slaughtering facilities to ensure the completion of shipping paperwork or note the condition of individual horses in a shipment. This view seems consistent with our analysis of shipping certificates which found, as discussed, a statistically significant increase in incomplete certificates after the cessation of domestic slaughter. In addition, these officials noted that the loss of FSIS's assistance in slaughtering facilities, as well as the prohibition on APHIS's inspections of horses in transit, has led to a general decline in investigation cases since 2007. Figure 11 shows the number of investigation cases and alleged violators for fiscal years 2005 through 2010.

**Figure 11: Number of Investigation Cases and Alleged Violators of the Slaughter Horse Transport Program Regulation, Fiscal Years 2005 through 2010**



Source: GAO analysis of USDA's APHIS data.

Note: According to APHIS officials, the number of alleged violators exceeds the number of investigation cases because some investigations may reveal that multiple violators were responsible for a single violation and some investigations do not substantiate that a violation occurred.

## Cessation of Domestic Slaughter Has Diminished APHIS's Ability to Implement the Transport Regulation to Protect Horse Welfare

According to APHIS and animal protection officials, horse welfare is likely to suffer as a consequence of horses traveling significantly farther to slaughter since the cessation of domestic slaughter, including an increased possibility of injuries when horses are confined in a conveyance with other horses over longer transport distances and travel times. As these officials explained, horses are by nature fight or flight animals, and when grouped in confinement, they tend to sort out dominance. In the tight quarters of a conveyance, weaker horses are unable to escape from more dominant and aggressive animals and, thus, are more prone to sustaining injuries from kicks, bites, or bumping into other horses or the walls of the conveyance. Moreover, once a shipment of U.S. horses has crossed the border into Canada or Mexico, APHIS no longer has authority to oversee their welfare, and these animals may be in transit for long distances in these countries before reaching a slaughtering facility. For example, the slaughtering facilities in Mexico that process U.S. horses are located near Mexico City,

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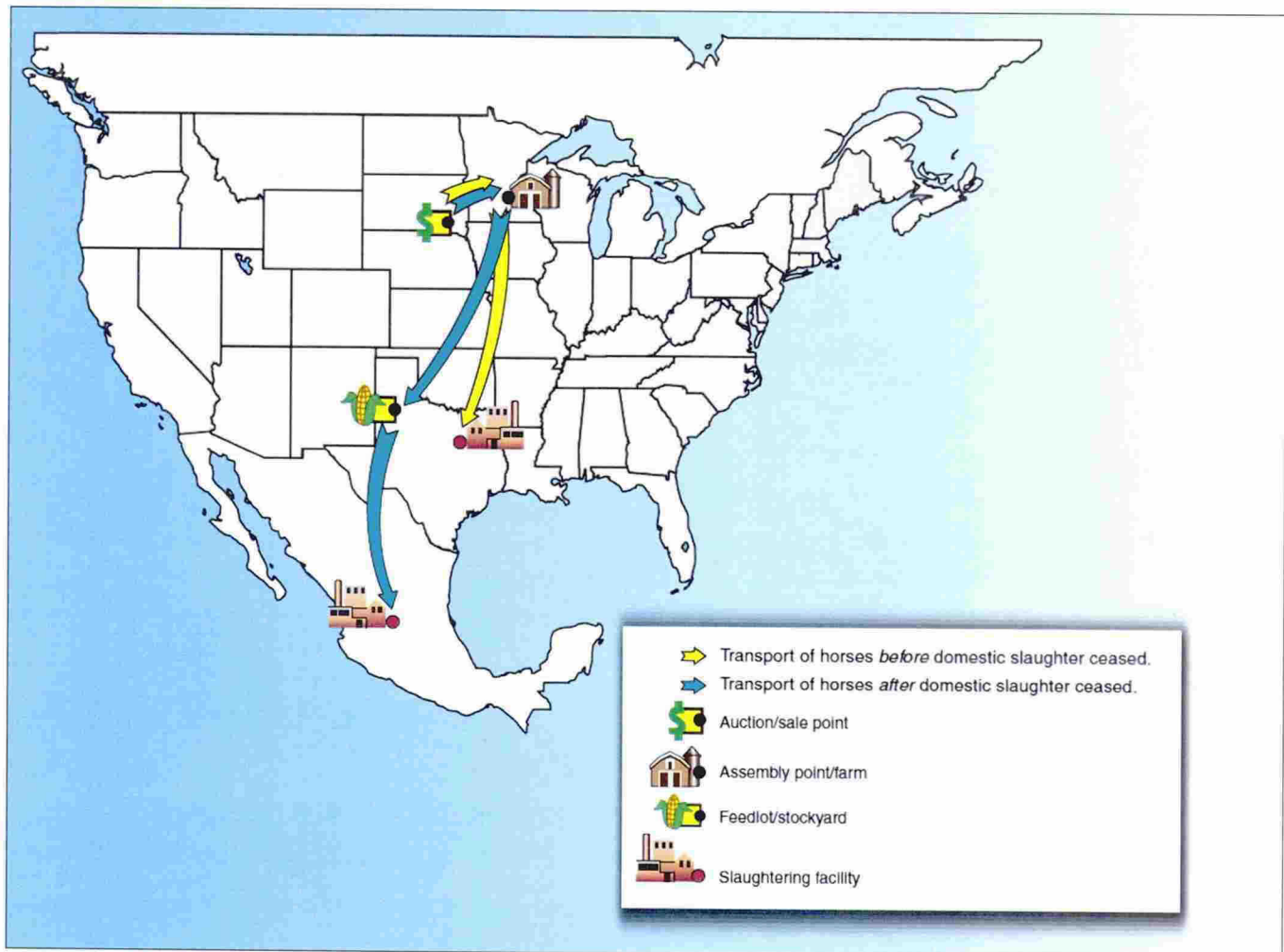
well within the interior of the country. In addition, the conveyances that horses are transferred to for travel in Mexico are not subject to the requirements of the transport regulation.

Our analysis of a sample of owner/shipper certificates for 2005 through 2009 showed that, in 2005 and 2006, before domestic slaughter ceased, horses traveled an average of 550 miles after being designated for slaughter. In contrast, in 2008 and 2009, after domestic slaughter ceased, our analysis showed horses intended for slaughter traveled an average of 753 miles—an increase of about 203 miles.<sup>28</sup> (The actual distances that the horses traveled, on average, before and after the cessation is likely to be greater than what our analysis showed because some shippers were prone to designate horses intended for slaughter close to the slaughtering facility before cessation, or near the border after cessation.) Over the longer distances horses now travel to Canadian and Mexican slaughtering facilities, APHIS is less able to effectively implement the transport regulation to protect horse welfare. Figure 12 provides an example of contrasting shipping routes and relative travel distances from before and after domestic slaughter ceased.

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<sup>28</sup>The 95-percent confidence intervals for estimates of 550, 753, and 203 miles are 492 to 608, 691 to 815, and 117 to 288, respectively.

Figure 12: Example of Transport of Horses to Slaughtering Facilities Before and After Domestic Slaughter Ceased



Source: GAO analysis of USDA documents; Art Explosion (images); MapArt (map).

In addition, since the cessation of domestic slaughter, USDA has been less able to help BLM prevent the slaughter of wild horses and burros. Wild horses and burros may be adopted, but title does not pass to the adopter until 1 year after the adoption, upon a determination that the adopter has provided humane conditions, treatment, and care for the animal over that

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period. Upon transfer of title, the animals lose their status as wild free-roaming horses and burros. As we reported in 2008,<sup>29</sup> from 2002 through the end of domestic slaughter in September 2007, about 2,000 former BLM horses were slaughtered by owners to whom title to the horses had passed.<sup>30</sup> When horses were slaughtered domestically, FSIS inspectors in slaughtering facilities watched for horses bearing the BLM freeze mark indicative of the wild horse and burro program. They would then alert BLM officials so that the title status of these animals could be checked to ensure that BLM horses were not slaughtered. As a result of FSIS's assistance during the same time period, at least 90 adopted wild horses that were still owned by the government were retrieved from slaughtering facilities before they could be slaughtered. However, now that the slaughter of U.S. horses occurs in Canada and Mexico, FSIS can no longer provide this assistance. Furthermore, shippers are not required to identify BLM horses on owner/shipper certificates, but in reviewing nearly 400 owner/shipper certificates, we found indications that six adopted BLM horses had been shipped across the border for slaughter. Because inspection officials in foreign slaughtering facilities have no obligation to check with BLM or other U.S. authorities before slaughtering these animals, it is unknown whether title for those animals had passed to the adopter or how many more BLM horses may have been shipped across the border for slaughter.

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## Conclusions

The slaughter of horses for any purpose, especially for human consumption, is a controversial issue in the United States that stems largely from how horses are viewed, whether from an historic, work, show, recreation, or commodity point of view. As a result, there is tension between federal law mandating the inspection of horses and certain other animals at slaughter (i.e., the Federal Meat Inspection Act) and annual appropriations acts prohibiting the use of funds to inspect horses at, or being transported to, slaughtering facilities.

What may be agreed upon, however, is that the number of U.S. horses that are purchased for slaughter has not decreased since domestic slaughter

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<sup>29</sup>GAO-09-77.

<sup>30</sup>BLM is not required to protect animals after ownership has passed to adopters or buyers. However, since the spring of 2005, BLM has required adopters to sign a statement that they do not intend to slaughter the animals to help address concerns by horse advocates about horses being slaughtered.

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ceased in 2007. Furthermore, an unintended consequence of the cessation of domestic slaughter is that those horses are traveling farther to meet the same end in foreign slaughtering facilities where U.S. humane slaughtering protections do not apply. Their journey from point-of-purchase to slaughtering facilities in other countries, with multiple potential stops in-between at assembly points, feedlots, and stockyards, includes the possibility of being shipped in conveyances designed for smaller animals or confined in these conveyances for excessive time periods. The current transport regulation, the Commercial Transportation of Equines to Slaughter regulation, does not apply until a shipment is designated for slaughter, which can be the last leg of a longer journey. A 2007 proposed rule to amend the regulation, which would define “equines for slaughter” and extend APHIS’s oversight and the regulation’s protections to more of the transportation chain, has not been issued as final as of June 2011.

To adequately implement the transport regulation and oversee the welfare of horses intended for slaughter, the horse transport program must ensure that owner/shipper certificates are completed, returned, and evaluated for enforcement purposes. Many certificates are not now returned, and others are returned incomplete. Furthermore, because of limited staff and funding and these missing and incomplete certificates, the program is less able to identify potential violations of the transport regulation. The program also stopped automating certificate data. Even with the present limitations of incomplete and missing certificates, automating these data is important for management oversight of compliance with the regulation and to direct scarce program resources to the most serious problem areas. Moreover, in time, as corrective actions are taken, these data will likely become even more useful for oversight purposes. If the proposed rule to extend APHIS’s authority to more of the transportation chain is issued as final, the program’s credibility will be further challenged unless APHIS identifies ways to leverage other agency resources to ensure compliance with the transport regulation.

With U.S. horses now being shipped to Canada and Mexico for slaughter, APHIS depends upon cooperation with these countries, or state officials at the borders, to help it implement the transport regulation, but it does not have effective agreements that make clear each party’s obligations and that help ensure cooperation will continue as personnel change. APHIS developed an agreement with Canadian officials in 2002, but recently the agency has been receiving incomplete owner/shipper certificates from them, raising questions about the current agreement’s effectiveness and whether both APHIS and Canadian officials have the same understanding about the assistance APHIS seeks. Furthermore, APHIS does not have formal



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cooperative agreements with its Mexican counterpart and the Texas Department of Agriculture—the entities that oversee most U.S. horses exported to Mexico for slaughter. APHIS has not received any owner/shipper certificates from either of these entities in more than a year.

Recent, annual congressional actions to prohibit the use of federal funds to inspect horses in transit or at slaughtering facilities have complicated APHIS's ability to implement the transport regulation, thus horses now travel longer distances to foreign slaughtering facilities. APHIS lacks jurisdiction in these countries, and it can no longer depend on the help it once received from other USDA officials present in domestic slaughtering facilities to catch potential violations of the transport regulation. Even after the recent economic downturn is taken into account, horse abandonment and neglect cases are reportedly up, and appear to be straining state, local, tribal, and animal rescue resources. Clearly, the cessation of domestic slaughter has had unintended consequences, most importantly, perhaps, the decline in horse welfare in United States.

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## Matters for Congressional Consideration

In light of the unintended consequences on horse welfare from the cessation of domestic horse slaughter, Congress may wish to reconsider the annual restrictions first instituted in fiscal year 2006 on USDA's use of appropriated funds to inspect horses in transit to, and at, domestic slaughtering facilities. Specifically, to allow USDA to better ensure horse welfare and identify potential violations of the Commercial Transportation of Equines to Slaughter regulation, Congress may wish to consider allowing USDA to again use appropriated funds to inspect U.S. horses being transported to slaughter. Also, Congress may wish to consider allowing USDA to again use appropriated funds to inspect horses at domestic slaughtering facilities, as authorized by the Federal Meat Inspection Act. Alternatively, Congress may wish to consider instituting an explicit ban on the domestic slaughter of horses and export of U.S. horses intended for slaughter in foreign countries.

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## Recommendations for Executive Action

To better protect the welfare of horses transported to slaughter, we recommend that the Secretary of Agriculture direct the Administrator of APHIS to take the following four actions:

- Issue as final a proposed rule to amend the Commercial Transportation of Equines to Slaughter regulation to define “equines for slaughter” so that USDA’s oversight and the regulation’s protections extend to more of the transportation chain.
- In light of the transport program’s limited staff and funding, consider and implement options to leverage other agency resources to assist the program to better ensure the completion, return, and evaluation of owner/shipper certificates needed for enforcement purposes, such as using other APHIS staff to assist with compliance activities and for automating certificate data to identify potential problems requiring management attention.
- Revisit, as appropriate, the formal cooperative agreement between APHIS and CFIA to better ensure that the agencies have a mutual understanding of the assistance APHIS seeks from CFIA on the inspection of U.S. horses intended for slaughter at Canadian slaughtering facilities, including the completion and return of owner/shipper certificates from these facilities.
- Seek a formal cooperative agreement with SAGARPA that describes the agencies’ mutual understanding of the assistance APHIS seeks from SAGARPA on the inspection of U.S. horses intended for slaughter at Mexican border crossings and slaughtering facilities and the completion and return of owner/shipper certificates from these facilities. In the event that SAGARPA declines to enter into a formal cooperative agreement, seek such an agreement with the Texas Department of Agriculture to ensure that this agency will cooperate with the completion, collection, and return of owner/shipper certificates from Texas border crossings through which most shipments of U.S. horses intended for slaughter in Mexico pass.

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## Agency Comments and Our Evaluation

We provided a draft of this report to USDA for review and comment. In written comments, which are included in appendix III, USDA agreed with the report's recommendations. Regarding the first recommendation, USDA said it will move as quickly as possible to issue a final rule, but first it must formally consult with the Tribal Nations that are experiencing particularly serious impacts from abandoned horses. USDA said that if it can successfully conclude these negotiations in the next 2 months, it would publish the final rule by the end of calendar year 2011. However, USDA also said that it needs time to thoughtfully consider those consultations in regards to the regulation's implementation. Regarding the second recommendation, USDA noted it is training additional APHIS port personnel in Slaughter Horse Transport Program enforcement activities at Texas ports of embarkation and plans to expand this effort in fiscal year 2012 within the allocated budget. USDA also stated it is training administrative personnel to evaluate owner/shipper certificates for enforcement purposes, and it will explore whether new technologies have made the process of entering information from those certificates into a database less costly in order to do so within existing funding. Regarding the third recommendation, USDA said it would consult with CFIA and propose revisions to the current cooperative agreement. Regarding the fourth recommendation, USDA indicated it will consult with SAGARPA and the Texas Department of Agriculture and propose the development of formal agreements with one or both.

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We are sending copies of this report to the appropriate congressional committees, the Secretary of Agriculture, and other interested parties. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or [shamesl@gao.gov](mailto:shamesl@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix IV.



Lisa Shames  
Director, Natural Resources  
and Environment

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# Appendix I: Objectives, Scope, and Methodology

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Our report objectives were to examine (1) the effect on the U.S. horse market, if any, since domestic slaughter of horses for food ceased in 2007; (2) the impact, if any, of these changes on horse welfare and on states, local governments, tribes, and animal welfare organizations; and (3) challenges, if any, to the U.S. Department of Agriculture's (USDA) oversight of the transport and welfare of U.S. horses exported for slaughter.

In general, to address these objectives, we reviewed documents and/or interviewed officials from

- USDA, including the Animal and Plant Health Inspection Service (APHIS), Food Safety Inspection Service, Foreign Agricultural Service, National Agricultural Statistics Service, and the Office of Inspector General;
- other federal agencies such as the Department of the Interior's Bureau of Land Management, Department of Commerce, Department of Labor's Bureau of Labor Statistics, and Congressional Research Service;
- state and local governments, including the National Association of State Departments of Agriculture, Montana Association of Counties, National Association of Counties, National Sheriffs Association, and Western State Sheriffs Association; and
- Native American tribes, including several Great Plains Tribes, the Northwest Tribal Horse Coalition, and several Southwestern Tribes.<sup>1</sup>

We also reviewed documents and/or interviewed representatives from

- livestock industry organizations, including the American Association of Equine Practitioners, American Horse Council, American Veterinary Medical Association, Florida Animal Industry Technical Council, Maryland Horse Industry Board, Livestock Marketing Association, United Horsemen's Front, United Organizations of the Horse, Unwanted Horse Coalition, and commercial horse auctions located in

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<sup>1</sup>The Northwest Tribal Horse Coalition consists of tribes from five reservations—the Confederated Tribes of the Colville Reservation, Washington; the Confederated Tribes of the Umatilla Reservation, Oregon; the Confederated Tribes of the Warm Springs Reservation of Oregon; the Confederated Tribes and Bands of the Yakama Nation, Washington; and the Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho.

various states, including Alabama, Arkansas, Montana, Oklahoma, Pennsylvania, and Virginia; and

- animal welfare organizations, including the American Society for the Prevention of Cruelty to Animals, Animal Law Coalition, Animal Welfare Institute, Equine Welfare Alliance, and Humane Society of the United States.

In addition, we reviewed published literature related to the horse industry and livestock slaughter, and we interviewed academic experts who have researched and written about these issues. Furthermore, we reviewed relevant federal and state legislation regarding horse inspection, slaughter, transport, and/or welfare, including bills proposed but not enacted in the 111th U.S. Congress and by state legislatures, and related federal regulations, including USDA's Commercial Transportation of Equines to Slaughter regulation and related guidance. To determine the extent to which slaughter for non-food purposes occurs in the United States, we identified facilities that had been reported to slaughter horses for other purposes (e.g., food for animals at zoos and circuses) and interviewed the Slaughter Horse Transport Program's compliance officer about the officer's examinations into these facilities' operations. We also visited border crossings in New Mexico and Texas, horse auctions in Montana and Pennsylvania, and tribal lands in the northwest United States to observe the handling of horse shipments at the border, horse sale procedures, and wild and abandoned horse management challenges, respectively.

To further examine the effect on the U.S. horse market, if any, since the cessation of domestic slaughter, we used an econometric analysis and regression methods to estimate the effect of the cessation on horse prices, while considering the effects of the U.S. economic downturn (i.e., recession) and horse- and auction-specific variables.<sup>2</sup> We did this analysis because we found few current studies addressing the effect of the cessation on horse prices in the economic literature. In undertaking this work, we collaborated with Dr. Mykel Taylor, Assistant Professor and Extension Economist in the School of Economic Sciences at Washington

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<sup>2</sup>"Econometric" refers to the application of statistical methods to the study of economic data, and "regression" is a statistical method used in econometrics that can isolate the impact of one variable on a particular outcome while considering the impact of other variables. In this case, the variable and outcome of particular interest are the cessation of domestic slaughter and changes in horse prices, respectively.

State University, who was studying this issue at the time we began our work and previously had modeled and written about the determinants of horse prices.

We obtained data for our analysis from multiple sources. Regarding horse prices, we obtained sale price and horse characteristic data on 12,003 sale transactions from spring 2004 through spring 2010 at three large horse auctions located in Montana, Oklahoma, and Virginia. Specifically, we extracted data from price sheets and catalogue information published or otherwise provided by the owners of these auctions. We chose these auctions because they were located in geographically diverse parts of the country. In addition, these auctions regularly sell lower-value horses, as well as more expensive horses valued for leisure, work, or show purposes. Some, but not all, of the lower-valued horses in the data are bought for slaughter, including some referred to as “grade” or “loose” horses. We assumed that if there was an effect from the cessation of domestic horse slaughter, prices for lower-valued horses would be most impacted. Consequently, we did not include data in our analysis from auctions catering to very high-priced racing and show horses. We also obtained data from the Department of Labor’s Bureau of Labor Statistics on changes in unemployment in each of the regions in which the horse auctions we selected are located. We used these unemployment data as a proxy for the economic downturn experienced in recent years. We performed quality tests and interviewed knowledgeable agency officials and auction representatives about the sources of the data and the controls in place to maintain the data’s integrity, and we found the data to be sufficiently reliable for the purposes of this report.

Using these data, we analyzed whether there was a significant reduction in average sale price per head after the cessation of domestic slaughter. For purposes of our analysis, the period prior to cessation included spring 2004 through 2006, and the period after cessation included 2007 through spring 2010 (because most domestic slaughtering facilities were closed by early 2007). To evaluate the potential reasons for this reduction in price, we also developed a hedonic model, which allows one to describe the price of a good (e.g., a horse) as a function of the value of intrinsic characteristics of that good (e.g., a horse’s breed, age, and gender).<sup>3</sup> Thus, we specified a horse’s sale price as a function of variables that describe its

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<sup>3</sup>In a hedonic model, the individual coefficients of the regression variables represent the implicit price of each characteristic found in that good.

physical attributes, such as breed, age, and gender; auction-specific variables, such as region of the country and season of the year; and other variables, such as the cessation of domestic slaughter and economic downturn. We used the quantile regression technique to derive coefficients to explain the impact on horse prices for each variable in the model. Quantile regression is a statistical method that provides information about the relationship between an outcome variable (e.g., horse prices) and explanatory variables (e.g., cessation of slaughter) at different points in the distribution of the outcome variable.<sup>4</sup> This type of regression is more appropriate than standard linear regression for several reasons. For example, we wanted to determine the estimated effects of the cessation at various points across the entire distribution of sales prices in our data, instead of on just the average value (i.e., mean), as in linear regression.<sup>5</sup> Also, the approach is more appropriate when using data from separate sources, such as the three auctions in different parts of the country. In addition, because our price data were highly skewed (i.e., included mostly lower- and mid-priced horses), we transformed prices to a natural logarithmic scale in the regression in order to obtain a better statistical fit for our model.<sup>6</sup>

There are several potential limitations to this type of modeling. For example, all of the variables influencing an outcome may not be known, and there are likely to be limitations in the data available for the analysis. For example, the price of a horse may also be related to other attributes such as quality of pedigree and performance characteristics (e.g., championships or titles won), but information on these variables was not available for all horses in our analysis. In addition, other characteristics of a horse, such as health, demeanor, and general appearance may also affect the price buyers are willing to pay, but those characteristics are difficult to measure and, therefore, were not available for our analysis. Nevertheless, despite these limitations, this type of regression is useful for developing

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<sup>4</sup>Quantiles and percentiles are synonymous—for instance, the 0.80 quantile is the 80th percentile. The median, or the middle value of the ranked dataset, is the 0.50 quantile or 50th percentile.

<sup>5</sup>Standard linear regression models the relationship between one or more explanatory variables, X, and the mean of an outcome variable, Y. In contrast, quantile regression models the relationship between X and the quantiles of Y, and it is especially useful in applications where low and high values in the distribution of Y are important.

<sup>6</sup>One common transformation of data used in econometric (or regression) analysis is the natural logarithmic scale (ln). It is often used to transform highly-skewed data into a more normal (or symmetric) distribution.

estimates of the impacts from, and an indication of the relative importance of, various variables to an outcome.

In our analysis, we estimated the impact of the cessation on horse prices, while considering other relevant variables, on horse sale price for five price quantiles (20th, 40th, 50th, 60th, and 80th percentiles). As discussed, the other variables in our analysis included a horse's physical characteristics, such as breed/type, age, and gender. Regarding breed, the data contained a total of 27 horse breeds, but for purposes of our analysis, we categorized horses into one of seven variables—Quarter horses, Paint horses, Appaloosas, ponies and miniature horses, Thoroughbreds, combined “other,” and “grade.” Grade horses are sold without breed designation, are often sold in groups, and are usually the lowest-priced horses available at an auction. Regarding age, horses in our data ranged from 1 to 32 years old, and we included age as a continuous variable in our analysis. We also used a related variable, the square of a horse's age, to account for changes in a buyer's willingness to purchase a horse as its age increases. Regarding gender, we used “indicator” variables for mare, stallion, and gelding (a neutered male horse).<sup>7</sup> In addition, we used two interactive variables to explain how the gender and age of a horse could interact to affect its sale price—(1) interacting mare with age and (2) interacting gelding with age. For example, the price of a mare may increase early in her life as she is able to produce foals but may decline when she becomes too old to breed consistently.

To capture information that was auction-specific, we included several additional variables in our analysis. First, we measured the percentage of “no-sale” horses at each auction. In general, these horses were not sold by their owners because they did not receive high enough final bids for these horses at auction. We also included a variable denoting whether an auction was in the western, southern, or eastern region of the United States. In addition, we included variables to delineate whether an auction was held in the spring or fall seasons. Industry experts we contacted said spring auctions generally are larger and bring higher prices than fall auctions, when owners may be more anxious to sell their horses rather than have to feed them through the winter.

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<sup>7</sup>An indicator variable takes the value of 1 or 0, depending on whether an event is true or present (i.e., 1), or not (i.e., 0).



We included the cessation of slaughter as an indicator variable in our analysis, with “0” indicating the period prior to the cessation of domestic slaughter in 2007, and “1” for the period after. For purposes of our analysis, the period prior to cessation included spring 2004 through 2006, and the period after cessation included 2007 through spring 2010 (because most domestic slaughtering facilities were closed by early 2007).

To measure the effect of the economic downturn, we used a variable based on average monthly unemployment rates from the Bureau of Labor Statistics for the 12-month period prior to the date of each auction. These data are compiled by Census Divisions or by geographic region; we used the data for those Census Divisions or regions that correspond to the locations of the three auctions.<sup>8</sup> More specifically, we averaged the unemployment rate data for the 12-month period prior to the date of each auction because we assumed that buyers and sellers would make transaction decisions based on economic conditions for a period before the date of the auction, not just on conditions at the time of the auction.

In order to review the soundness of our methodology and results, we asked five academic experts in agricultural economics to review a draft of our model specifications and discussion of results for fatal flaws. We chose these experts because they have published articles related to the horse industry and livestock slaughter issues. These experts generally found the model specifications and results credible. Several offered specific technical comments related to the presentation of the model results, which we incorporated, as appropriate. Additional information about the results of our analysis is in appendix II.

To further examine the impact, if any, of horse market changes on horse welfare and states, local governments, tribes, and animal welfare organizations, we used semi-structured interviews to systematically collect the views of the State Veterinarian (an appointed position) in 17 states.<sup>9</sup>

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<sup>8</sup>For the eastern auction, we used unemployment data for the “Mid-Atlantic” and “South Atlantic” regions, consisting of Delaware, District of Columbia, Florida, Georgia, Maryland, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Virginia, and West Virginia. For the southern auction, we used data for the “West South Central” region, consisting of Arkansas, Louisiana, Oklahoma, and Texas. For the western auction we used data for the “Mountain” region, consisting of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

<sup>9</sup>These states are California, Colorado, Florida, Indiana, Kentucky, Louisiana, Maryland, Missouri, Montana, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Texas, and Wyoming.

These states included the 10 with the largest horse populations, and the 10 with the largest horse economies—a total of 14 states. In addition, we added Montana, New Mexico, and Wyoming at the suggestion of representatives of the horse industry and animal welfare organizations, who indicated that these states had unique perspectives on border or tribal issues related to horses. In some cases, the State Veterinarian was joined by other state officials, such as members of the state livestock board, for these interviews. The results of the interviews are not generalizable to all State Veterinarians but provide information about the situations faced by these 17 states.

Semi-structured interviews follow a standard structure to systematically gather information from the target audience. In our case, we wanted to systematically collect information from these 17 states on (1) horse sales and prices; (2) export, trade, and transport of horses; (3) abandoned and adopted horses; (4) horse abuse and neglect cases; (5) legislation related to horse slaughter and welfare; and (6) other factors generally affecting horse welfare. Using software called NVivo, we then performed a qualitative content analysis of the results of these interviews to identify common themes and the frequency with which certain issues were raised.

Content analysis is a methodology for structuring and analyzing written material. Specifically, we developed a coding and analysis scheme to capture information on factors that may explain changes in the horse industry in these states. Such factors included the cessation of domestic slaughter; economic conditions; restrictions on the use of certain drugs in horses slaughtered for human consumption; and changes in horse breeding, disposal, care and maintenance, prices, sales, and such inputs as the cost of feed. We also developed a coding and analysis scheme to capture information on factors related to horse owners' potential responses to those changes, including abandoning, neglecting, abusing, and hoarding horses, as well as factors related to horse welfare such as being harmed by unfamiliar herds and traveling farther to slaughter. In addition, we developed a coding and analysis scheme to identify state and local responses to changes in the horse industry, including impacts on resources, costs, investigations, and legislation. The content analysis was conducted by two GAO analysts with the assistance of a GAO methodologist. Discrepancies in coding were generally discussed and resolved between the analysts; on occasion, the methodologist weighed in to resolve a discrepancy.

To further examine challenges, if any, to USDA's oversight of the transport and welfare of U.S. horses exported for slaughter, we identified and

analyzed a generalizable sample of about 400 horse shipping forms, known as owner/shipper certificates, for the period 2005 through 2009, to determine whether (1) the certificates were properly completed and (2) horses were traveling farther to slaughter since the cessation of domestic slaughter in 2007 than they were traveling prior to the cessation. Each owner/shipper certificate represents one load or shipment of horses. APHIS maintains these forms at its headquarters offices in Riverdale, Maryland, in hardcopy, sorted by year and shipper.

As there were no electronic records of the sample frame (i.e., the universe of certificates) from which we could randomly sample and we initially did not know the total number of certificates on file, we selected a stratified, systematic random sample from the hardcopy certificates for the period. We chose to stratify the sample frame into three strata (i.e., time periods) so we would be able to compare estimates of certificate completeness and the distances horses traveled before and after 2007. Specifically, we systematically selected 396 certificates, including 192 for 2005 through 2006, the 2 years prior to the cessation of domestic slaughter; 84 for 2007; and 120 for 2008 through 2009, the 2 years after the cessation. In the course of selecting this sample, we determined that there were nearly 16,000 certificates on file for these years, including 7,671 certificates for 2005 through 2006, 3,378 certificates for 2007, and 4,787 certificates for 2008 through 2009.

Because we followed a probability procedure based on random selections of our starting points (e.g., first select the 25th certificate in the 2005 through 2006 strata and every 40th certificate thereafter), our sample is only one of a large number of samples that we might have drawn. Since each sample could have provided different estimates, we expressed our confidence in the precision of our particular sample's results as a 95 percent confidence interval. This is the interval that would contain the actual population value for 95 percent of the samples we could have drawn.

To estimate the degree to which owner/shipper certificates were properly completed by the shipper and by Canadian and Mexican officials, we extracted information from the certificates that APHIS uses to help determine compliance with the Commercial Transportation of Equines to Slaughter regulation, such as the loading date, time, and location; certification that the horses were fit for transport; the identity of the receiving slaughtering facility; and the date and time the shipment arrived. Using our sample of certificates, we calculated estimates of the degree of completeness of all certificates returned to APHIS from slaughtering

facilities or border crossings from 2005 through 2009 and tested the change over time for statistical significance.

In order to estimate the distance that horses traveled, on average, we extracted information on each shipment's origination (i.e., loading) point and destination (i.e., off-loading) point from the certificates. Regarding shipments that went to former U.S. slaughtering facilities, we used the Transportation Routing Analysis Geographic Information System (TRAGIS) model developed by the Department of Energy to estimate driving miles between the origination point, such as an auction, farm, feedlot, or stockyard, and the slaughtering facility. Because TRAGIS includes only U.S. roads, we used a different approach for calculating distances beyond the U.S. border to foreign slaughtering facilities. First, based on USDA information on the border crossings most often used to export shipments of horses intended for slaughter, we used TRAGIS to calculate the distance from an origination point to several border crossings. Then, for each border crossing, we used commercial software available on the Web to estimate the distance from these crossings to a foreign slaughtering facility. We then combined the results and selected the combination that resulted in the shortest potential distance traveled from the origination point to the slaughtering facility. As a result, our estimates of the total distance traveled to foreign slaughtering facilities are likely to be underestimates.

We conducted this performance audit from April 2010 through June 2011, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Appendix II: Results of the Econometric Analysis of Horse Sale Prices

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For our econometric analysis of horse sale prices from three large geographically-dispersed horses auctions, we conducted a hedonic quantile regression to estimate the impact of a number of explanatory variables, including the cessation of domestic horse slaughter; the economic downturn (i.e., recession); horse attributes such as breed, age, and gender; and the location and timing of horse auctions, on the full range of values of the outcome variable—horse sale prices. We were particularly interested in the impact of the cessation and economic downturn, as these factors have been cited as reasons for recent changes in the horse industry. Appendix I includes a detailed explanation of our methodology for this analysis.

A discussion of the results for the separate variables in the model follows:

- *Age of horse.* The results show that age is an important variable in explaining horse prices in these auctions. The positive sign for a horse's age and negative sign for the age squared, indicate that young horses will increase in price as they age, but older horses will start to decline in price as they age. Moreover, the positive effect of age becomes zero for mares and geldings between 11 and 12 years of age, while stallions continue to increase in price for approximately 5 more years.
- *Gender of horse.* The results indicate that the value of horses varies both by their gender and the interaction of their gender and age. Specifically, the results show that the price of geldings is initially higher than both stallions and mares. This premium holds until approximately age 12, when the premium relative to stallions has gone to zero. Mares do not sell at a premium relative to stallions at any point in the age distribution.
- *Location and timing of auction.* The results indicate that a horse sold at either the eastern or southern auctions would fetch a higher price than an identical horse sold at the western auction. The premium for horses sold at the eastern auction is greater than the premium for horses sold at the southern auction. The timing of an auction—spring versus fall—was also statistically significant and suggests that horses sold in the fall tend to sell at a discount, although this effect diminishes for the higher price categories. This may be because owners may be more anxious to sell their horses in the fall rather than feed them through the winter.
- *Auction no-sales percentage.* The results suggest that for every 1 percent increase in an auction's "no-sales" percentage, price decreased

by about 2 percent across quantiles. That result was highly statistically significant and consistent across all horse price quantiles. This phenomenon may result from sellers having certain expectations of acceptable bid prices, and, if those expectations are not met, they may be willing to wait for a later auction date to try selling the horse again. Horse buyers may have expectations, as well, that prices will be falling even lower and wait until the next auction. This may be especially true during a period of economic slowdown, according to experts.

- *Horse breed/type.* The results suggest that Quarter horses sold at a premium, relative to grade horses, which do not have a declared breed registry. Ponies also tend to sell at a premium relative to grade horses, for those ponies sold in the higher categories (i.e., quantiles). An unexpected result was that other breed types, Paint horses, Appaloosas, and Thoroughbred horses sold at either a discount or did not show statistically significant difference in price, relative to grade horses. This could have been due to the small number of observations compared to other breeds and that for certain breeds, such as Appaloosas, there could be a lack of buyers for these types of horses.
- *Economic downturn.* The results show that the recession or downturn in the general economy caused a consistently negative effect on horse prices across the range of price categories. This effect was greater, in dollar terms, for the higher price categories. Across the five price categories, we estimate that for each percentage point increase in average unemployment in the relevant regions, horse prices decreased by 5.2, 5.2, 4.8, 4.7, and 4.8 percentage points, respectively.
- *Cessation of domestic slaughter.* The results show that the cessation was related to declines in prices for lower- to middle-value horses but diminished for higher-value horses (i.e., horses in the higher price categories in the table). For example, in the first three price categories, horse prices declined by 21, 10, and 8 percentage points, respectively.

Table 2 lists the results, expressed as semi-log coefficients, of the hedonic quantile regression for five categories of horse sale prices—the 20th, 40th, 50th (median), 60th, and 80th percentiles.<sup>1</sup>

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<sup>1</sup>A semi-log model specification is one in which the outcome variable (Y) is transformed into logarithms and the explanatory variables (X) are unchanged. The model coefficients of the explanatory variables from this type of specification are then in semi-log form. The semi-log specification has been widely used in the economic literature to estimate horse and other livestock prices in hedonic models.

Appendix II: Results of the Econometric  
Analysis of Horse Sale Prices

Table 2: Semi-log Coefficients for Hedonic Quantile Regression of Horse Prices

Explanatory variable <sup>b</sup>	Estimated coefficients by quantile (percentile) of horse price distribution <sup>a</sup>				
	20th	40th	50th (median)	60th	80th
Age of horse	0.218***	0.233***	0.241***	0.243***	0.221***
Age of horse squared	-0.007***	-0.007***	-0.007***	-0.007***	-0.006***
Gender mare (female)	0.220***	0.180**	0.086	0.103	0.129
Gender gelding (neutered male)	0.879***	0.882***	0.780***	0.767***	0.568***
Interaction of mare with age	-0.061***	-0.071***	-0.068***	-0.073***	-0.075***
Interaction of gelding with age	-0.059***	-0.081***	-0.086***	-0.094***	-0.094***
Southern auction	0.488***	0.532***	0.477***	0.504***	0.535***
Eastern auction	0.860***	0.924***	0.878***	0.813***	0.809***
Fall auction	-0.274***	-0.204***	-0.201***	-0.173***	-0.126***
Auction no-sale percentage	-0.020***	-0.020***	-0.016***	-0.016***	-0.012***
Breed Quarter horse	0.216***	0.291***	0.321***	0.323***	0.381***
Breed Paint horse	-0.138**	-0.134***	-0.092*	-0.068	-0.094*
Breed Appaloosa horse	-0.111	-0.156	-0.272*	-0.348*	-0.392**
Breed ponies & miniature horse	0.075	0.117	0.132	0.217**	0.201**
Breed Thoroughbred horse	-0.437***	-0.667**	-0.385	-0.430	-0.407**
Breed other (misc.) horse	-0.082	0.017	0.023	-0.054	-0.011
Economic downturn	-0.053***	-0.054***	-0.049***	-0.048***	-0.049***
Cessation of domestic slaughter	-0.235***	-0.110***	-0.082***	-0.028	0.034
Constant	5.817***	6.136***	6.276***	6.450***	6.963***

Source: GAO analysis of horse sale price, horse characteristic, and auction-specific data from three horse auctions, and unemployment rate data from the Department of Labor for regions where these auctions are located.

Notes: The estimates in the table that are statistically significant at the 0.05, 0.01, and 0.001 percent levels are noted by one, two, or three asterisks, respectively.

Although the sales data included 27 breeds, the primary breed types were Quarter horses, 73.9 percent of the horses; grades (low-valued horses without breed designation), 12.1 percent; and Paint horses, 11.9 percent; with a small number of observations for breeds such as ponies, 0.57 percent; Appaloosas, 0.45 percent; and Thoroughbreds, 0.25 percent.

<sup>a</sup>The upper bounds for the quantiles correspond to horses priced at \$600 (20th), \$1,000 (40th), \$1,400 (50th or median), \$1,750 (60th), and \$3,000 (80th).

<sup>b</sup>In creating categorical variables, one category must be omitted from the analysis to prevent dependencies (where one variable is highly related to another). For instance, to create the seasonal categorical variable, we omitted the *spring auction* variable from the analysis. However, the effect of the spring auction season is represented in the regression, because the coefficient for the variable *fall auction* is interpreted as relative to the reference variable (the one left out of the analysis—*spring auction*). Other categorical variables in the model include horse gender, region, and breed/type.

From the table, we see that most of the regression estimates for the model have the expected directional signs and are statistically significant. The retransformed results, from the semi-log form back to dollar and percentage changes, are presented for our two variables of interest—cessation of domestic slaughter and economic downturn—in table 1 of this report.

# Appendix III: Comments from the U.S. Department of Agriculture



United States Department of Agriculture

Office of the Secretary  
Washington, D.C. 20250

JUN 20 2011

Ms. Lisa Shames  
Director  
Natural Resources and Environment  
United States Government Accountability Office  
441 G Street, NW.  
Washington, D.C. 20548

Dear Ms. Shames:

The United States Department of Agriculture (USDA) appreciates the opportunity to review and provide comments on the GAO's Draft Report, "Horse Welfare: Action Needed to Address Unintended Consequences from Cessation of Domestic Slaughter" (GAO 11-228). We have addressed the Recommendations for Executive Action.

To better protect the welfare of horses transported to slaughter, GAO recommends that the Secretary of Agriculture direct the Administrator of APHIS to take the following four actions:

**Recommendation 1: Issue as final a proposed rule to amend the Commercial Transportation of Equines to Slaughter regulation to define "equine for slaughter" so that USDA's oversight and the regulation's protection extend to more of the transportation chain.**

**USDA Response:** The Department will move as quickly as possible to issue a final rule. Because, as this report indicates, Tribal Nations are experiencing particularly serious impacts from abandoned horses, it is crucial that we enter into formal consultations with them on this rule. If we can successfully conclude those negotiations in the next two months, we will publish the rule by the end of this calendar year. But, USDA needs time to also thoughtfully consider those consultations in regards to the regulation's implementation.

**Recommendation 2: In light of the transport program's limited staff and funding, consider and implement options to leverage other agency resources to assist the program to better ensure the completion, return, and evaluation of owner/shipper certificates needed for enforcement purposes, such as using other APHIS staff to assist with compliance activities and for automating certificate data to identify potential problems requiring management actions.**

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Ms. Lisa Shames  
Page 2

**USDA Response:** USDA is training additional Veterinary Services port personnel in Slaughter Horse Transport Program enforcement activities at the Texas ports of embarkation. In fiscal year 2012, we will expand this effort within the allocated budget. We are also training administrative personnel to evaluate certificates for enforcement purposes. USDA stopped entering information into a database in 2005 because the process was labor intensive and costly. USDA will explore whether new technologies have made the process less costly and, if we find that we can conduct this activity within existing funding, we will do so.

**Recommendation 3:** Revisit, as appropriate, the formal cooperative agreement between APHIS and CFIA to better ensure that the agencies have a mutual understanding of the assistance APHIS seeks from CFIA on the inspection of U.S. horses intended for slaughter at Canadian slaughtering facilities, including the completion and return of owner/shipper certificates from these facilities.

**USDA Response:** USDA will consult with CFIA and propose revisions to the current agreement.

**Recommendation 4:** Seek a formal cooperative agreement with SAGARPA that describes the agencies' mutual understanding of assistance APHIS seeks from SAGARPA on inspection of U.S. horses intended for slaughter at Mexican border crossings and slaughtering facilities and the completion and return of owner/shipper certificates from these facilities. In the event that SAGARPA declines to enter into a formal cooperative agreement, seek such an agreement with the Texas Department of Agriculture to ensure that this agency will cooperate with the completion, collection and return of owner/shipper certificates from Texas border crossing through which most shipment of U.S. horses intended for slaughter pass.

**USDA Response:** USDA will consult with SAGARPA and the Texas Department of Agriculture and propose the development of formal agreements with one or both.

Once again, we appreciate the opportunity to respond to GAO's draft report "Horse Welfare: Action Needed to Address Unintended Consequences from Cessation of Domestic Slaughter" and hope that our comments will help GAO in the preparation of its final report. If you have any questions, please contact Dr. John Clifford at (202) 720-5193.

Sincerely,



Edward Avalos  
Under Secretary  
Marketing and Regulatory Programs

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# Appendix IV: GAO Contact and Staff Acknowledgments

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## GAO Contact

Lisa Shames (202) 512-3841 or shamesl@gao.gov

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## Staff Acknowledgments

In addition to the contact named above, James R. Jones, Jr., Assistant Director; Jim Ashley; Mark Braza; Antoinette Capaccio; Barbara El Osta; Emily Gunn; Terrance N. Horner, Jr.; Armetha Liles; Kimberly Lloyd; Jeff Malcolm; John Mingus; Kim Raheb; and Carol Herrnsstadt Shulman made key contributions to this report.

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# Related GAO Products

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*Live Animal Imports: Agencies Need Better Collaboration to Reduce the Risk of Animal-Related Diseases.* GAO-11-9. November 8, 2010.

*Humane Methods of Slaughter Act: Weaknesses in USDA Enforcement.* GAO-10-487T. March 4, 2010.

*Humane Methods of Slaughter Act: Actions Are Needed to Strengthen Enforcement.* GAO-10-203. February 19, 2010.

*Humane Methods of Slaughter Act: USDA Inspectors' Views on Enforcement.* GAO-10-244SP. February 19, 2010.

*Veterinarian Workforce: The Federal Government Lacks a Comprehensive Understanding of Its Capacity to Protect Animal and Public Health.* GAO-09-424T. February 26, 2009.

*Veterinary Workforce: Actions Are Needed to Ensure Sufficient Capacity for Protecting Public and Animal Health.* GAO-09-178. February 4, 2009.

*Bureau of Land Management: Effective Long-Term Options Needed to Manage Unadoptable Wild Horses.* GAO-09-77. October 9, 2008.

*Humane Methods of Handling and Slaughter: Public Reporting on Violations Can Identify Enforcement Challenges and Enhance Transparency.* GAO-08-686T. April 17, 2008.

*USDA: Information on Classical Plant and Animal Breeding Activities.* GAO-07-1171R. September 13, 2007.

*National Animal Identification System: USDA Needs to Resolve Several Key Implementation Issues to Achieve Rapid and Effective Disease Traceback.* GAO-07-592. July 6, 2007.

*Workplace Safety and Health: Safety in the Meat and Poultry Industry, While Improving, Could Be Further Strengthened.* GAO-05-96. January 12, 2005.

*Humane Methods of Slaughter Act: USDA Has Addressed Some Problems but Still Faces Enforcement Challenges.* GAO-04-247. January 30, 2004.

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