Indiana Equine Industry Economic Impact and Health Study

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This report summarizes the preliminary findings from the several surveys conducted in the Spring, 2011 regarding the 2010 economic activity and health issues in the various segments of the equine industry. The study focuses on several economic issues and equine health issues. The economic issues are: (1) a profile of the equine industry in Indiana; (2) revenue and expenditure aspects of the equine industry; (3) employment aspects of the equine industry; and (4) the economic impact of the industry at the state, regional and planning level. The equine health issues are: (1) characterization of morbidity and mortality in the equine population; (2) a description of days of lost use and related costs due to ill or injured equine; and (3) the economic impact of the related equine health issues.

Section I Introduction

Background

The first comprehensive survey of the Equine industry in Indiana was a collaborative effort conducted in 2001. The focus of this comprehensive study was a census by breed and use of the equine population in Indiana along with the relevant revenues and related costs. This study found an estimated 160,000 equine in the state on approximately 34,000 operations. These equine were valued at over $580 million in 2002 dollars. Of those 160,000 horses, it was estimated that 43,200 were Quarter Horses, 22,300 were grade horses, and 15,300 were Standardbreds. The Quarter Horses were valued at $183 million and Standardbreds at $89 million, while annual expenses were approximately $549 million and annual income was $92 million, again in 2002 dollars.

In 2005, the American Horse Council commissioned a study conducted by Deloitte to examine the economic impact of the equine industry. That study generated a national reports as well as a breakdown for each of the major 15 "breakout States". Indiana was one of those states. That study indicated that the U.S. equine industry had a large and positive economic impact on other segments of the U.S. economy, manifested in direct effects from the economic activity of the equine industry itself, the indirect effects derived from the economic activity of the equine industry, and the induced effects when incomes are generated and spent in various ways throughout the economy. For example, when a saddle is purchased, not only is the manufacturing of saddles supported, but also the suppliers of raw materials for the saddles, the saddle-making equipment industry, and the support services to deliver, distribute, and market the saddles. All of these other affected industries stimulate demand for their suppliers. Incomes are generated at each stage in each related industry, which in turn stimulate economic activity throughout the economy.

This study estimated the horse population In Indiana at 202,986, placing Indiana ninth among the states in horse population. This study estimated the economic impact on the state GDP at $1.316 billion (10th in the nation), with an estimated 89,977 individuals age 18 or over participating (11th in the nation) and an equivalent of 22,556 full time employees in the industry (12th in the nation).

A study in 2010 focused on the economic impact of the racing industry and the breeding industry, two of the major components of the overall equine industry.

This report focuses on the Indiana equine industry and its two fold purpose is to report on the equine industry's economic impact and equine health issues. The survey instruments were kept as close as possible to the other two surveys for comparison purposes.

Timeline

This broad study is based on three on-line surveys that were conducted simultaneously in the Spring of 2011. Those surveys were disseminated at public venues such as the Hoosier Horse Fair but primarily through the network of horse organizations in the State. The focus of the data collection was on specific and important final markets as well as on the economic activity that leads up to those markets. The surveys were a Horse Show Survey, an Indiana Race Track Survey, and an Indiana Equine Business and Owners Survey. The Indiana Equine Business and Owners Survey was broken down into several segments: an Equine Business Survey, an Equine Owners Survey, an Equine Entrepreneur Survey, and an Equine Health Survey. The results reported here are based on those various surveys integrated with information from the previous surveys.

Estimation of economic impacts was determined utilizing state specific IMPLAN multipliers to estimate the overall economic impact of the industry on the state GDP and on employment. The IMPLAN modeling system has been in use since 1979 and is currently used by over 500 private consulting firms, university research centers, and government agencies. The IMPLAN system combines the U.S. Bureau of Economic Analysis Input-Output Benchmarks with other data to construct quantitative models at the state level. The effects of a change in one or several economic activities can be analyzed within the framework of the model to estimate or predict the effect on a state, regional or local economy (impact analysis) all the way down to the county level. The economic impacts of the equine industry are estimated using the most current 2009 IMPLAN multipliers for the State of Indiana.

Supply Chain

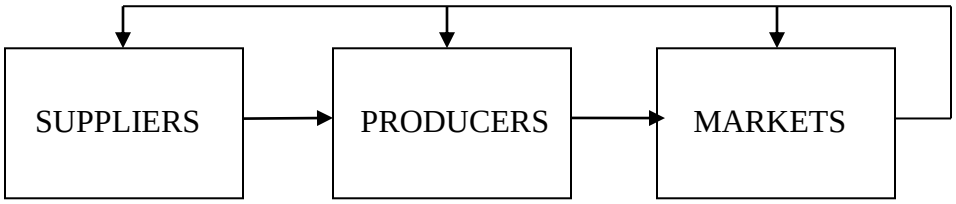
The equine industry is far more complex when compared to other large animal industries. The cattle and hog industries, for comparison, are singular in purpose. Basically, there is a specific motivation for raising cattle and hogs, so the economic and health issues are homogeneous and the primary economic issues relate to the scale of operation and the total number of animals.

The equine industry, however, involves a variety of animal types intended for many different purposes. Consequently, the types of facilities, the types of resources employed, the skills required, the types of markets and intended uses as well as health issues are varied and contribute to the complexity of the industry.

A supply chain involves all the enterprises and economic activities from the securing of raw materials and basic resources, through the various activities involved in the continuing processes, to the ultimate end results and consumers involved in the industry. Although every enterprise in the industry views itself independently with its own source of resources, work efforts, and customers, the performance of the larger industry depends upon the interactions between all these competing enterprises. The first step is the realization that each enterprise is part of a larger industry and that ultimately, success or failure depends upon adding value to the final consumer. For example, the long term success of the horse racing industry depends not only on the race track operations, but on the quality of horses and athletes involved. The quality of horses depends not only on breeding but also upon a variety of other enterprises that provide boarding, training, medical care, feed and other necessary products and services.

The supply chain model best describes this complex equine industry. This model broadens the perspective to consider not only the performance of one category of enterprise or activity, but all the economic activities from fundamental resource suppliers, to the final uses and users of the horses. The relationships between suppliers and producers, producers and customers, and customer feedback are the focus of this model as depicted below.

Figure 1.1 The Equine Supply Chain



SUPPLIERS: The suppliers provide the resources needed to raise a horse to an age where the horse can productively function in its intended purpose whether that be racing, showing, recreation, or work. Some of the supply markets affiliated with the equine industry include feed grains, bedding materials, breeding services, medications and supplements, stable and fencing equipment, tool suppliers, suppliers of grooming supplies (such as brushes and shampoos), tack supply (blankets, saddles, bridles, etc.), horse trailers and transport services, and just about any other material or service necessary to breed and raise horses.

PRODUCERS: Specifically, the producers would breed and raise horses to a specific use such as racing, showing, work or recreation. Prior to the birth of a foal, breeding services are needed as well as veterinarian and farrier services for the care of the mare. After the birth of the foal, the services required include farrier service, veterinarian services, boarding, medical care, feeding, exercise and training, grooming, and a variety of activities necessary to raise that horse to its intended purpose. If an equine business, there may be a need for a sales agent, an attorney, an accountant, and marketing.

MARKETS: These are the activities related to the purposes of the horses. Whether it be racing, showing, recreation, or work, there are facilities, personnel, equipment, and other resources involved in order to enable the various ways that horses may be used. Equine markets vary by breed and by performance discipline. Horses that are not considered suitable for the purpose intended for the breed are frequently sold in the recreational and work horse markets.

There are two important aspects of a modern supply chain. One aspect addresses the issue of the degree to which an enterprise engages in the productive activities or relies on an outside contractor. A horse farm, for example, must determine if it would provide its own farrier services with a farrier employed on sight or rely on a farrier to provide services as needed on a contract basis. The other aspect is the information that returns along the supply chain and the relationships between the enterprises in the supply chain that facilitate the information flow. For example, breeders need a communication link with farms in order to efficiently produce foals. When viewing the industry as a series of connected business activities, a deeper understanding of the industry will evolve.

Equine by Breed in Indiana

Thirteen general categories by breed are identified as well as the various uses for these breeds. This information is detailed in Table 5.1. The average value per horse is estimated to be $6,383 in 2010, based on self-reported values by owners in the survey. But these values range from an average for donkeys and mules of $836 to the higher valued Warmbloods with an average value of $16,816.

Table 1.1 Horses by Breed, Value and Primary Use 2010

Breed	Average Value Per Horse	Primarily Used For: Breeding	Racing	Showing	Rec	Work	Other
Appaloosas	$ 2,822	4.1%	0	22.7%	54.6%	0	18.5%
Arabians	$ 5,353	8.2%	0	24.0%	55.4%	1.6%	10.7%
Draft Horses	$ 3,750	28.6%	0	18.0%	18.8%	25.6%	9.0%
Grade Horses	$ 1,647	5.6%	0	20.5%	50.8%	11.3%	11.8%
Morgans	$ 2,192	6.0%	0	2.7%	57.6%	6.1%	3.0%
Pintos/Paints	$ 8,252	20.2%	0	30.8%	36.7%	1.2%	11.1%
Quarter Horses	$ 4,848	12.4%	2.6%	24.4%	30.1%	3.5%	27.0%
Saddlebreds	$ 10,526	49.2%	0	37.7%	13.1%	0	0
Standardbreds	$ 15,223	48.7%	39.9%	0	6.2%	0	5.2%
Thoroughbreds	$ 8,327	24.4%	36.9%	13.7%	13.2%	8.6%	3.2%
Warmbloods	$ 16,816	7.3%	0	52.6%	28.9%	6.1%	6.1%
Ponies	$ 2,106	12.7%	1.0%	19.1%	44.5%	10.9%	11.8%
Donkeys/Mules	$ 836	4.2%	0	0	55.3%	6.4%	34.1%
Other	$ 3,036	8.3%	0	10.7%	70.3%	0.4%	10.3%
TOTAL:	$ 6,383						

Within any breed, values vary substantially due to the quality, use, and age of the animals. The most common reported uses were recreation (40.5% of the horses) and showing (25.9% of horses) as may be anticipated. Other uses such as racing are breed-specific. This supports the contention that the equine industry is segmented as the table above illustrates.

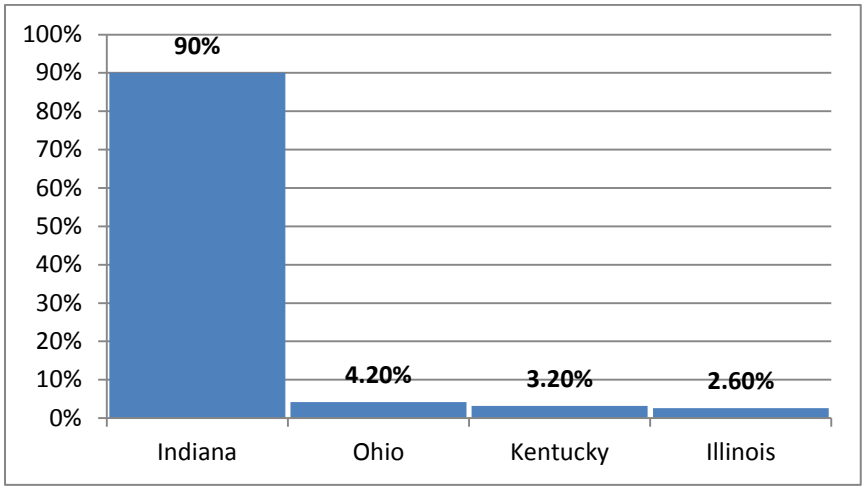
The last census of the equine inventory was completed in 2002 using 2001 data. In that census, it was determined that the equine population was approximately 160,000 animals in the thirteen specific categories as well as others. The 2005 study by the American Horse Council, while not a census, estimated the horse population in Indiana at 202,986. A census of the equine population was not a goal of this current survey and it is assumed that the more conservative estimate from the 2002 census remains accurate.

Section II Economic Results

Race Horse Breeding in Indiana

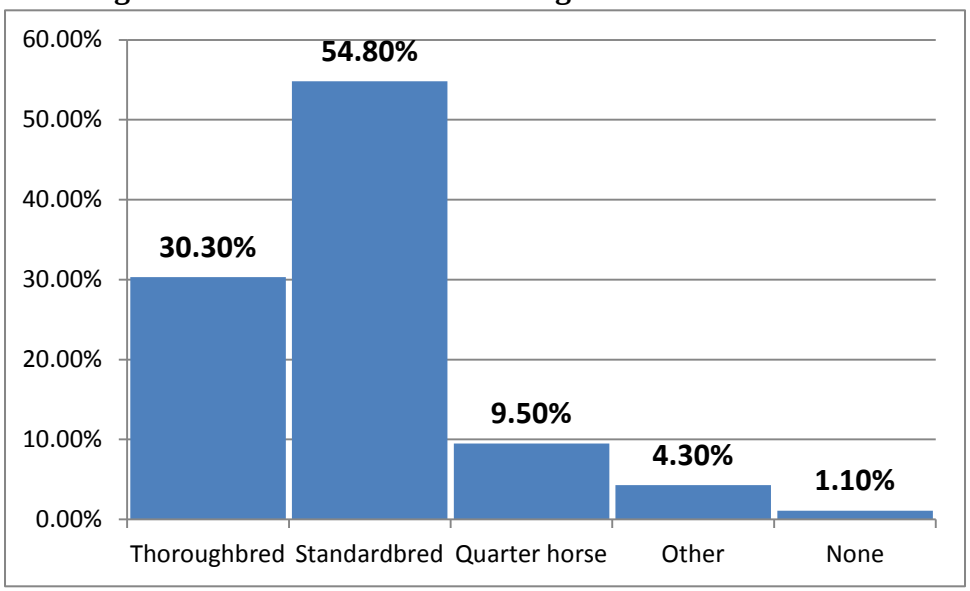
Although Race Horse breeding was not part of this study, in order to provide a complete overview of the equine industry, some results from our recent study in 2010 involving race horse breeding is included here. There are over 7,000 race horse breeders and related enterprises in Indiana operating throughout the State. Although most of the race horse breeders are local enterprises, ten percent of the breeders in Indiana involve enterprises that operate primarily outside the State, largely from Ohio, Kentucky and Illinois.

Figure 2.1 Race Horse Breeders in Indiana by Residence



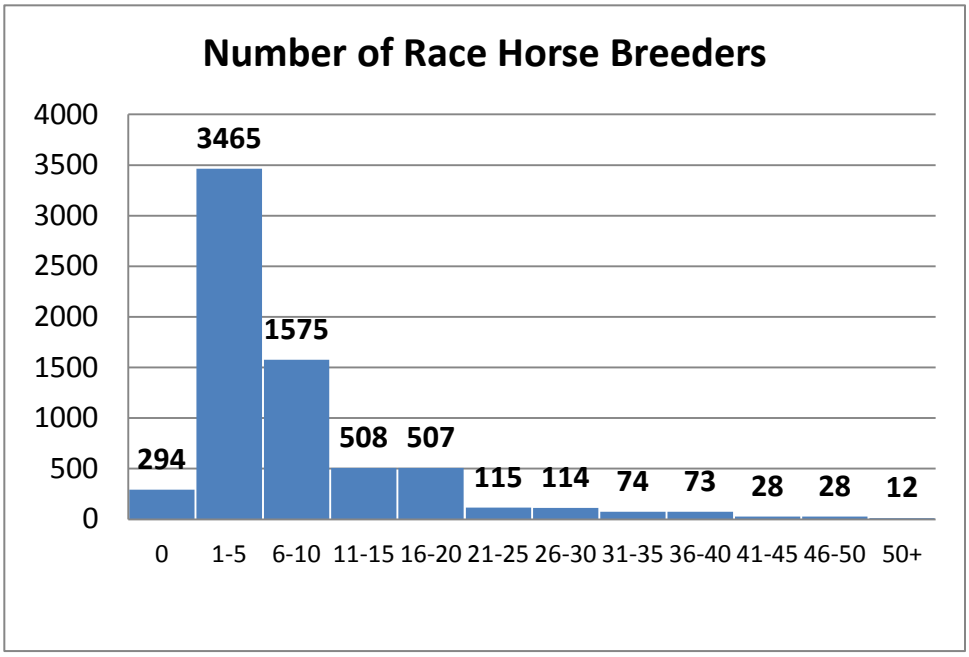
Ninety-nine percent of the race horse breeders are affiliated with at least one breed organization. Of the breeders with organizational affiliations, 30.3% are affiliated with Thoroughbred organizations, 54.8% with Standardbred organizations, and 9.5% with Quarter Horse organizations.

Figure 2.2 Race Horse Breeder Organizational Affiliations



While 4.2% of the race horse breeders do not own horses, most race horse breeders operate on a small scale. The approximately 7,000 breeders own an average of 3.4 horses or a total of 23,500 horses. Approximately 1.7% of the breeders run large operations with 50 or more horses and as many as 220 horses while 76.2% have ten horses or fewer.

Figure 2.3 Distribution of Race Horse Breeders By Number of Horses Owned



Most race horse breeders kept horses at their own facilities (68%), while 7% keep horses at training facilities and 25% at a variety of other facilities. These other facilities include race tracks (38.4%), other farms (20.5%), fairgrounds (11%), breeding farms (8%) and out of state facilities (15.5%).

A significant source of race horse breeder income is derived from purses and awards with approximately $107,800,581 in purses and $10,985,093 in awards. Race Horse Breeders also generate substantial revenues from sale of horses ($81,383,127), Boarding ($58,396,037) and Training ($46,118,415). Race Horse Breeder revenues come from a variety of other sources as illustrated in Table 2.4. These other sources of revenue project an additional $35,877,030 in the other categories of revenue.

Figure 2.4 Race Horse Breeder Revenues – Percentages by Source

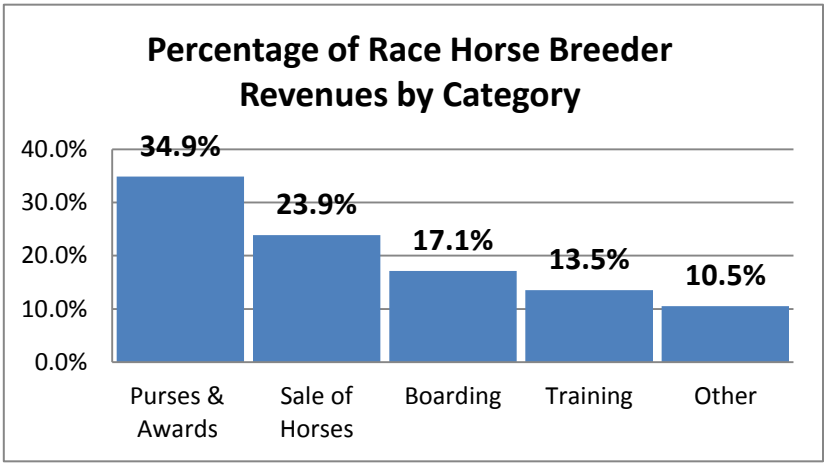


Table 2.1 Estimated 2010 Race Horse Breeder Revenues By Revenue Category

Revenue Category	Estimated Revenues
Purses	$107,800,581
Sale of Horses	$81,383,127
Boarding	$58,396,037
Training	$46,118,415
Stud Fees	$18,814,593
Awards	$10,985,093
Other Income	$10,461,913
Sale of Equipment	$3,362,870
Insurance Income	$827,498
Sale of Property	$766,150
Interest Income	$652,365
Rental Land	$534,660
Leasing of Horses	$305,081
Rental Equipment	$151,900
TOTAL:	$340,560,283

Race horse breeder expenses, detailed in 32 specific categories, exceed $406,000,000 with an average of $58,193 per breeder. These projections are summarized in Table 2.2 below.

Although race horse breeders operate in most counties in the State, the majority of breeders, 64.7% are residents of other States but have operations in Indiana. This indicates that the breeding industry at this time is a significant export industry for Indiana.

Figure 2.5 How Race Horse Breeder Expenditures are Distributed Throughout the 12 Planning Regions Designated by the Indiana Department of Labor.

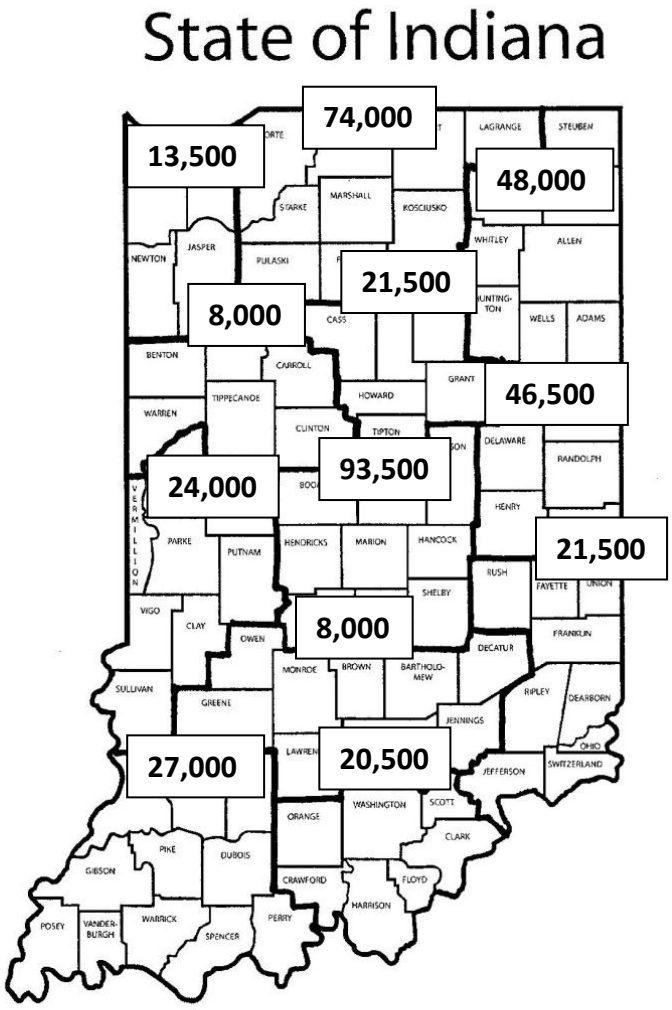
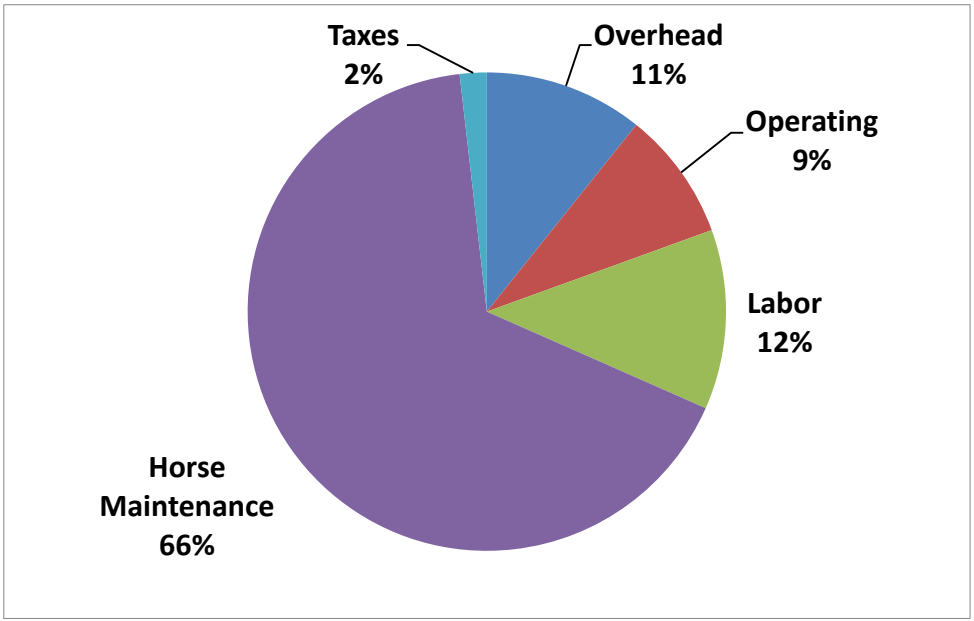


Table 2.2 Estimated Race Horse Breeder Expenses Total For 2010

Expense Category	Amount of Expense
Overhead Expenses	
Mortgage Expense	$ 19,540,570
Depreciation	$ 18,308,101
Equipment Payments	$ 4,090,303
Interest Payments	$ 1,754,319
Operating Expenses	
Fuel Expenses	$ 10,759,882
Maintenance & Repairs	$ 7,058,135
Insurance	$ 5,728,618
Utilities	$ 3,071,999
Organization Fees	$ 2,572,675
Accounting Services	$ 2,447,522
Marketing & Advertising	$ 2,177,588
Office Equipment	$ 1,156,680
Legal Fees	$ 522,088
Labor Expenses	
Wages & Salaries	$ 33,074,993
Contract Labor	$ 14,217,392
Benefits	$ 2,142,673
Horse Maintenance Expenses	
Training Fees	$ 74,603,606
Horse Purchases	$ 50,700,937
Feed & Supplements	$ 35,144,368
Veterinarian Fees	$ 28,661,542
Breeding Fees	$ 22,761,438
Boarding Fees	$ 19,153,449
Farrier Fees	$ 10,952,452
Bedding	$ 7,559,426
Medical Supplies	$ 6,879,565
Shipping & Travel	$ 6,534,724
Stable Supplies	$ 5,893,881
In Kind Expense	$ 839,398
Equipment Rental	$ 619,325
Leasing Fees	$ 498,806
Taxes	
Property Tax	$ 6,026,573
Sales Tax	$ 1,379,721
TOTAL:	**$406,833,749**

Figure 2.6 Percentage of Race Horse Breeder Expenses by Category



Economic Impact of Race Horse Breeding

Based on direct expenditures of $406,833,749, the economic impact of this segment of the equine industry was determined utilizing the IMPLAN model. The results are tabulated below:

Table 2.3 Economic Impact of Race Horse Breeding 2010

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	4,882	1,017	5,899
Labor Income	$ 41,252,942	$ 39,007,219	$ 80,260,162
GDP Output	$406,833,749	$170,259,924	**$577,093,673**

Race horse breeding generates State, local and Federal tax revenues, directly and indirectly. The impact of Equine Breeding on tax revenues exceeded $48 million in 2010.

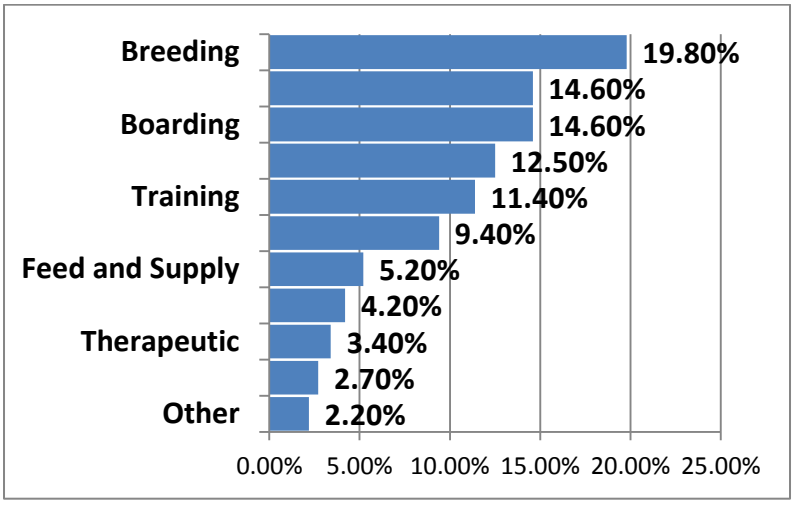
Table 2.4 Direct and Indirect Taxes Derived From Race Horse Breeding 2010

State and Local Tax Revenues	
Employee Compensation	$ 101,708
Indirect Business Tax	$17,290,434
Households	$ 1,830,752
Corporations	$ 4,759,956
Total State and Local	**$23,982,850**
Federal Taxes	
Employee Compensation	$ 8,543,509
Proprietor Income	$ 362,082
Indirect Business Tax	$ 2,196,902
Households	$ 4,312,438
Corporations	$ 8,848,634
Total Federal	**$24,263,565**

Equine Businesses in Indiana

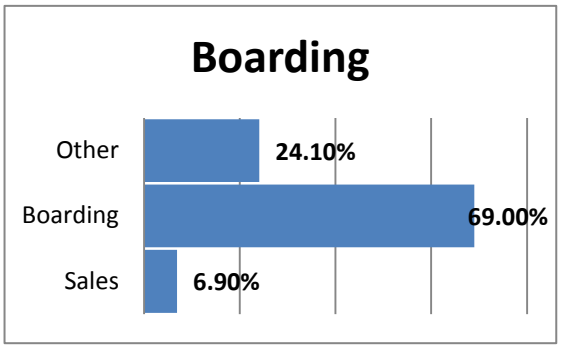
Many small equine operations do not perceive themselves as business activities but only as horse owners. Consequently, approximately 21% that responded to this particular survey completed the business survey section. The primary use of these horses is as varied as the breeds. The predominant businesses represented in the survey are breeding, veterinary services, boarding, riding instruction and training. The "other" category includes rescue (less than 1%). However, the ancillary businesses that supply the equine industry, such as the retail vendors at horse shows or trailer manufacturers, did not respond.

Figure 2.7 Percentage of Equine Business by Type of Business 2010



The sources of business revenue are as varied as the types of equine businesses. The following Figures illustrate the relative sources of revenues for these particular market segments.

Figure 2.8a Revenues for Boarding Enterprises



Boarding enterprises draw most of their revenues from boarding fees (69 percent). There are a variety of other sources of revenue including sales of various types (6.9 percent).

Figure 2.8b Revenues for Breeding Enterprises Other Than Race Horses

The Breeders other than Race Horse breeders generate revenues primarily from breeding (50.4 percent), but also from boarding (16.7 percent) and from sales (12 percent).

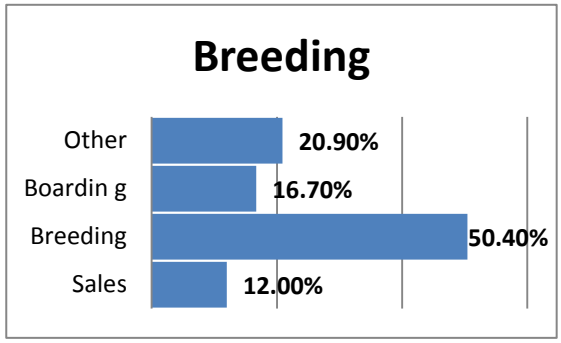
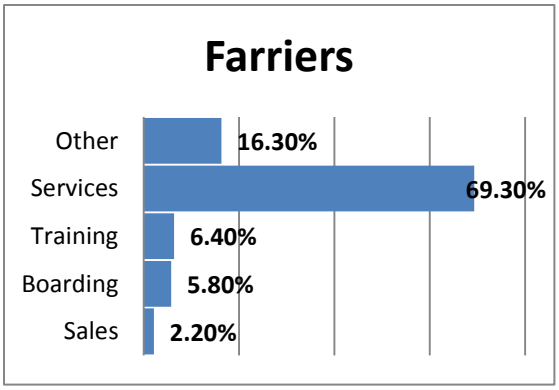


Figure 2.8c Revenues for Farrier Enterprises



Although farriers generate most of their revenues from services (69.3 percent), other sources include sales (2.2 percent), boarding (5.8 percent) and training (6.4 percent).

Figure 2.8d Revenues for Feed and Bedding Enterprises

The providers of feed and bedding generate a substantial part of revenue from sales (63.1 percent) but engage in boarding (5.6 percent) and other sources (31.3 percent).

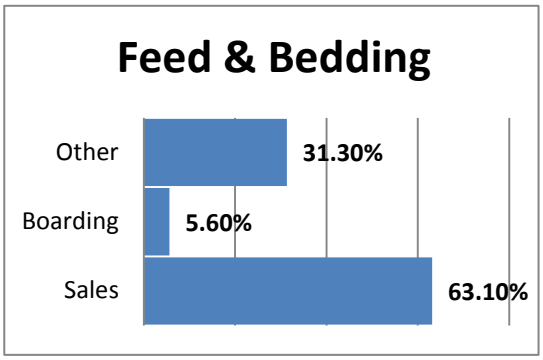
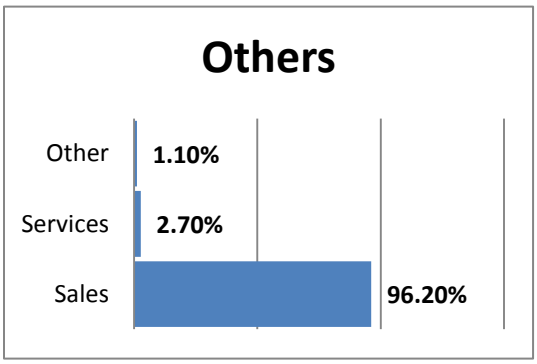
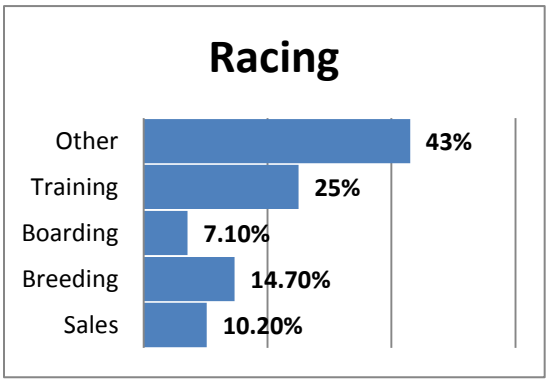


Figure 2.8e Revenues for Other Equine Business



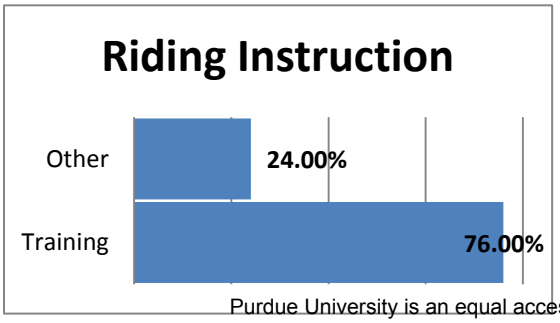
The "Others" category includes therapeutic services, tack shops, and rescue activities. The primary source of revenue for this collection of enterprises is sales (96.2 percent).

Figure 2.8f Revenues for Racing Enterprises



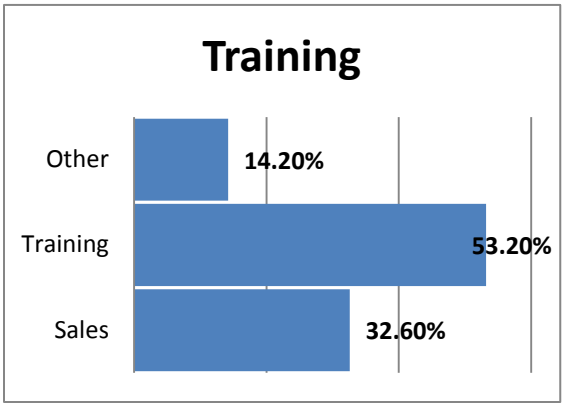
Racing, other than race track revenues draws revenues from prizes and awards among unspecified sources in the "other" category (43 percent) but also a substantial proportion of revenues coming from training (25 percent), breeding (14.7 percent) and boarding (7.1 percent).

Figure 2.8g Revenues for Riding Instruction Enterprises



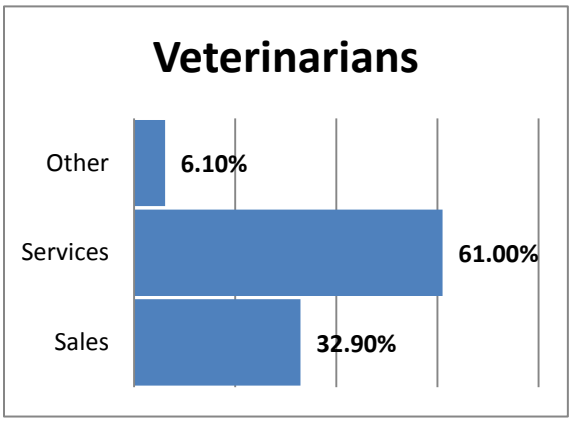
Riding instruction revenues come primarily from the fees for riding instruction (76 percent) but other sources of revenue exist (24 percent).

Figure 2.8h Revenue for Training Enterprises



While most training revenues are from training activities (53.2 percent), sales account for 32.6 percent of revenues.

Figure 2.8i Revenue for Veterinary Enterprises



Veterinary Revenues are derived primarily from the services provided (61 percent) and the medications and other items sold (32.9 percent).

There are three general categories of revenue sources significant to the economic development of the State of Indiana. The first category is the revenues that result from the sale of items or services provided in other states or countries. For this category, the value added stems from the services rendered to the final customer. This category includes the sale of items produced elsewhere. Most of the value returns to the source where the items or services are produced. Consequently, this category of revenue has marginal impact on the State economy. Examples would be Tack products that originate outside of Indiana and are brought into Indiana and sold to Indiana residents. Another would be medications from outside Indiana that are resold by a veterinary office.

Another category involves products or services that are domestic to Indiana. That is, the product or service is produced and sold in Indiana. This category has a complete impact on the State economy as the value added is entirely within the State. This category includes boarding and breeding services that take place entirely within the State, many veterinary, riding instruction and farrier services, racing activity that involves only State residents, feed and bedding that

originates within the State, and other such economic activities that utilize in State resources to provide products and services to Indiana customers.

The third category involves product or services that originate in Indiana but the final customer is from outside of Indiana. Examples of such markets would be boarding of horses for owners from outside Indiana, wagering revenues from outside of Indiana, or breeding of horses sold to customers outside of Indiana. These revenues tend to generate new wealth for Indiana and have the greatest economic impact.

A typical equine business operation generates an average of $108,000 in revenue. However, the scale of these businesses ranges from a few hundred dollars in generated revenues to over a million dollar enterprises. The median revenue is $20,500 with a range of $1,245,000 from largest to smallest revenues. The median revenue for equine business enterprises reporting the category of revenue, regardless of function or scale is described in Table 2.5 along with the highest and lowest revenues reported in the survey from each category.

Table 2.5 Equine Business Revenues by Revenue Category

Category of Revenue	Median Revenue for Those Enterprises with this Category of Revenue	Highest Revenue in the Survey	Lowest Revenue in the Survey
Veterinary Services	$ 123,100	$ 666,000	$ 2,000
Racing Revenues	$ 57,000	$ 850,000	$ 5,700
Farrier Services	$ 32,700	$ 85,000	$ 5,500
Breeding Fees	$ 27,500	$ 1,000,000	$ 200
Training Fees	$ 22,300	$ 73,000	$ 4,600
Riding Instruction	$ 20,300	$ 700,000	$ 2,000
Boarding Fees	$ 18,100	$ 115,200	$ 1,400
Sales	$ 8,500	$ 1,244,000	$ 100
Feed and Supply	$ 6,900	$ 34,500	$ 800
Other Sources	$ 5,500	$ 675,000	$ 5,700

The average market value of equipment and structures was $730,257 per business unit, while the value of the land is an average of $267,708 per business unit.

Table 2.6 Equine Business Investments 2010

	Average
Investments in Equipment & Structures	$ 55,459
Investments in Land	$ 176,034

In spite of the difficult economy, 44 percent of these equine enterprises made capital investments in equipment and structures while 9 percent reported investments in land for their enterprises in 2010.

Table 2.7 Median Annual Expenses for an Equine Related Business 2010

Expense Category	Median Expense	Highest Amount	Lowest Amount	Percentage That Have This Expense
Operating Expenses				
Equipment Purchases	**$ 3,500**	**$ 70,000**	**$ 30**	**68%**
Facility Maintenance	**$ 2,100**	**$ 45,000**	**$ 50**	**93%**
Equipment Maintenance	**$ 1,800**	**$ 11,376**	**$ 71**	**93%**
Utilities	**$ 1,600**	**$ 18,200**	**$ 10**	**71%**
Equipment Rental	**$ 1,200**	**$ 6,700**	**$ 50**	**13%**
Insurance	**$ 1,000**	**$ 23,748**	**$ 25**	**83%**
Advertising	**$ 400**	**$ 94,000**	**$ 5**	**70%**
Office Expense	**$ 300**	**$ 9,570**	**$ 10**	**70%**
Horse Maintenance Expenses				
Veterinary Services	**$ 2,400**	**$ 30,000**	**$ 50**	**100%**
Farrier Services	**$ 1,200**	**$ 35,000**	**$ 10**	**93%**
Labor Expenses				
Wages and Benefits	**$20,000**	**$551,500**	**$ 20**	**46%**
Taxes				
Federal Tax	**$5,200**	**$100,000**	**$100**	**35%**
State Tax	**$2,100**	**$160,000**	**$ 50**	**33%**
Local Tax	**$ 600**	**$12,000**	**$ 50**	**29%**

The responses to the survey yielded the results above. The major expense for an equine business in Indiana in 2010 was in wages and salaries, followed by all taxes. The businesses are so varied in character and function that there is no common pattern to expenses. A veterinary office, for example, would have no expenses for veterinary services but substantial labor costs.

The survey provides an insight into employment. The average number of employees per month by category is described in Table 2.8.

Table 2.8 Personnel Factors in Equine Businesses 2010

	Average per Month
Full time employees	3.58
Seasonal employees per month	10.62
Average weeks for seasonal	16.0
Part time employees	2.54
Average weeks for part timers	33.89
Average hours for part timers	17.14

Clearly, the type of business and the scale of business are principal factors that affect the utilization of labor in these varied business enterprises.

The Economic Impact of the Equine Businesses

Table 2.9 Economic Impact of Equine Enterprises 2010

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	**2,927**	**610**	**3,537**
Labor Income	**$24,734,654**	**$23,388,152**	**$48,122,806**
GDP Output	**$243,931,500**	**$102,085,333**	**$346,016,833**

The median equine business expense is $47,550. Based on the 2002 study and this survey, there are approximately 5,130 formal equine business enterprises.

Table 2.10 Direct and Indirect Taxes Derive From Equine Enterprises 2010

State and Local Tax Revenues	
Employee Compensation	$ 60,983
Indirect Business Tax	$ 10,367,089
Households	$ 422,002
Corporations	$ 2,853,999
Total State and Local	**$ 13,704,073**
Federal Taxes	
Employee Compensation	$ 5,122,562
Proprietor Income	$ 217,099
Indirect Business Tax	$ 1,317,230
Households	$ 2,585,674
Corporations	$ 5,305,510
Total Federal	**$ 14,548,075**

The survey provides an insight into employment. The average number of employees per month by category is described in Table 2.11.

Table 2.11 Personnel Factors in Equine Businesses 2010

	Average per Month
Full time employees	3.58
Seasonal employees per month	10.62
Average weeks for seasonal	16.0
Part time employees	2.54
Average weeks for part timers	33.89
Average hours for part timers	17.14

Clearly, the type of business and the scale of business are principal factors that affect the utilization of labor in these varied business enterprises.

Table 2.12 Economic Impact of Equine Enterprises 2010

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	4,334	903	5,237
Labor Income	$36,625,872	$34,632,037	$71,257,909
GDP Output	$361,201,890	$151,162,991	$512,364,881

Output is a composite of veterinary revenues, racing revenues, and a weighted average of all other industry classifications.

Table2 .13 Direct and Indirect Taxes Derived From Equine Enterprises 2010

State and Local Tax Revenues	
Employee Compensation	$ 90,300
Indirect Business Tax	$ 15,351,080
Households	$ 625,408
Corporations	$ 4,226,062
Total State and Local	**$ 21,292,850**
Federal Taxes	
Employee Compensation	$ 7,585,240
Proprietor Income	$ 321,470
Indirect Business Tax	$ 1,950,490
Households	$ 3,828,740
Corporations	$ 7,856,141
Total Federal	**$ 21,542,081**

Indiana Equine Owners

The vast majority of horses are privately held and many of the owners do not consider themselves as formal business enterprises. However, the activities of the owners represent a significant economic impact generating revenues and incurring expenses. The primary purpose for raising and maintaining horses according to the survey is 60.4% for recreation, 25.6% for competition, 7.2% for racing, 1.8% for work and 5.0% for other uses.

Regarding horse ownership, 97.9% of the horses are owned entirely by one party while the remaining are owned by several parties. It was found that 75.7% boarded their horses rather than maintaining them on their own property.

Most of these horses are housed in Indiana (98.2%), while a small percentage were reportedly housed outside the state, primarily in Ohio , Illinois, Kentucky, and Michigan (1.6%).

The number of operations reporting horses makes it difficult to detail accurately the distribution of horses throughout the State. It is assumed that the pattern, as well as the number, has not changed significantly since the 2002 survey of equine in the State. In this sample, the operations with horses identified were in 76 of the 92 counties.

Equine Related Income

Revenues are categorized into twelve categories and the percentage of revenues from each category have been determined from the study data. The percentage of each category of revenue that was derived from Indiana was also determined. A percentage less than 100% indicates that revenues are earned in Indiana but also from sources outside of Indiana. For example, boarding of horses draws some of its revenues from horse owners residing in other States. These results are detailed in Tables 2.14.

Table 2.14 Equine Owner Revenues By Source 2010

Category of Revenue	Percentage of Revenue From this Category	Percentage of Revenue from Indiana
Racing Horse Purses	41.9%	69.6%
Sale of Horses	18.7%	35.3%
Training Horses	13.5%	32.7%
Boarding Horses	12.2%	64.3%
Professional Service Income	6.3%	56.7%
Equestrian Awards	3.4%	76.7%
Stud Fees	1.9%	68.1%
Interest	0.8%	5.9%
Sale of Property or Equipment	0.6%	39.7%
Rental of Land	0.6%	57.8%
Rental of Equipment	0.6%	38.1%
Leasing Horses	0.1%	100.0%

Racing purses are a primary source of revenue for those deriving revenue from horses.

Leasing of horses, rental of land or equipment and interest income are relatively insignificant in the overall revenue picture. In many categories, equine owners that engage in economic activities extract a significant part of revenue from sources that reside outside of Indiana, particularly in the sale of horses, the training of horses, and the sale of equipment.

A significant part of reported revenues for sale of horses, boarding of horses and training of horses, which are three of the more substantial revenue categories, occur from sources outside of Indiana. This suggests that a significant number of the formal equine business enterprises are providing services for out-of-state horse owners.

Equine Related Expenses

The expenses of horse owners were categorized into five general categories. The percentage of total expenses was determined for each of these categories, the percentage derived from sources within Indiana, and the average amount of these expenses is summarized in Table 2.15.

Table 2.15 Equine Owner Expenses 2010

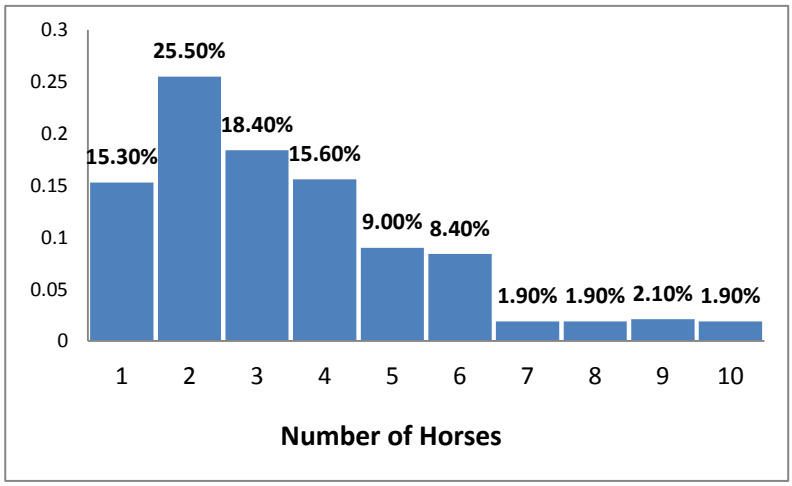
	Percentage of Expenses from this Category	Percentage of These Expenses in Indiana	Median Expense per Equine Operation
Maintenance of Horses	53.4%	87.8%	$ 3,900
Horse Activities	18.5%	78.5%	$ 1,350
Investments	11.6%	83.9%	$ 850
Maintenance of facilities	10.3%	98.8%	$ 750
Labor	6.2%	69.2%	$ 450
TOTAL:		83.4%	$ 7,300

The major expenses for horse owners are the maintenance of the horses and horse activities accounting for 71.9% of annual expenses. However, most of the costs are incurred in Indiana. The median expense per operation is $7,300 per year.

Owners of Recreational Horses

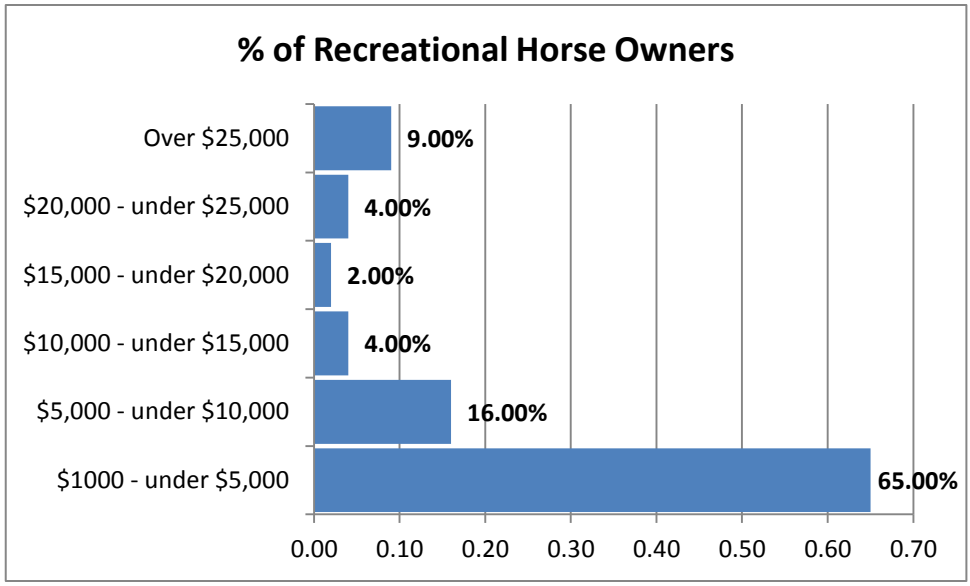
Most owners of recreational horses own relatively small numbers of horses. The average number of horses is 4.11, but the mode is 2 and the median is 3. Approximately 3% of the owners have more than 10 horses. Figure 2.9 illustrates the distribution of the number of horses per owner.

Figure 2.9 Relative Distributions of the Recreational Owners by Number of Horses 2010



Many owners of recreational horses do not generate significant revenues. Approximately 43% have revenues less than $1,000 per year while 5% generate more than $25,000 in revenues.

Figure 2.10 Distribution of Recreational Horse Owners by Annual Revenue 2010



For those recreational horse owners that generate at least $1,000 in annual revenue, 27% is generated from horse sales, 40% from boarding, 7% from professional services, and 26% from other sources that include stud fees, training, and rental incomes.

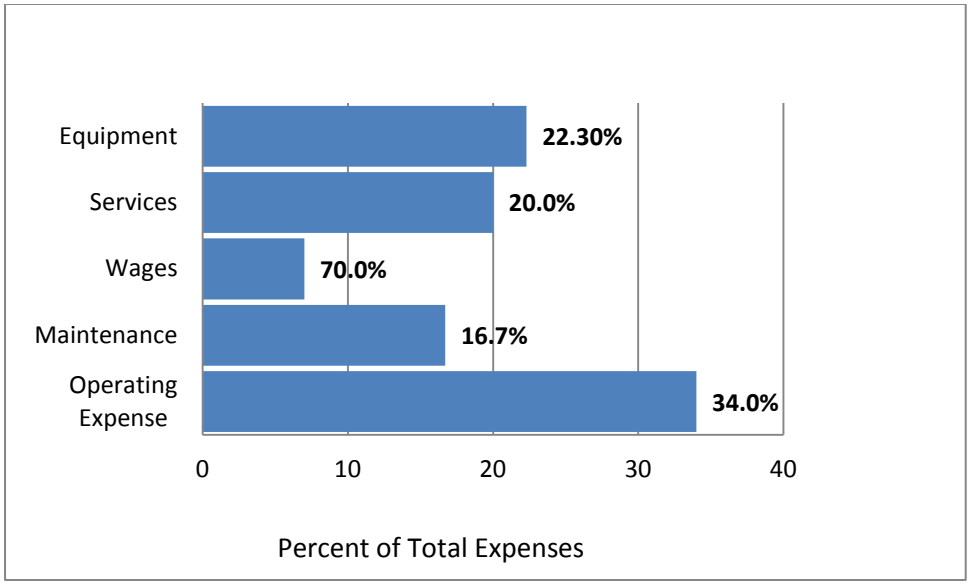
Owners of recreational horses incur significant expenses. The median annual expense per operation is $3,450 of which $2,864, or 83%, is incurred in Indiana. These expenses are detailed in Table 2.16.

Table 2.16 Annual Expenses for Recreational Horse Owners

Category	Median Annual Expense	Highest in the Survey	Lowest (non-zero) in the Survey
Maintenance of Horses	$ 3,080	$ 311,250	$ 10
Investments	$ 1,000	$ 125,000	$ 10
Maintenance of Facilities	$ 600	$ 100,000	$ 10
Horse Activities	$ 200	$ 100,000	$ 25
Labor	$ 170	$ 10,000	$ 15
Total:	**$ 3,450**		

Operating expenses include feeds, supplements, stable and medical supplies, bedding, and fees for veterinary and farrier services. Facility maintenance are the costs associated with maintaining facilities, such as fuel, utilities and repairs. Wages and benefits includes contract labor and training fees. Services refers to horse related activity costs such as breeding, boarding, and leasing costs, as well as shipping and travel expenses. Equipment includes purchases and rental of equipment.

Figure 2.12 Annual Expenses Recreational Horse Owner



Owners of Horses for Competition

The owners of horses intended for competition have an average of 4.52 horses, although most have fewer than 10 horses. Typically, those owners with small operations tend to board horses at others facilities. Those who board horses at others facilities have an average of 1.77 horses. Those with larger operations tend to maintain their horses at owner operated facilities. Those with horses at owner operated facilities have an average of 5.36 horses.

Figure 2.13 Relative Number of Competition Horses at Owner Operated Facilities

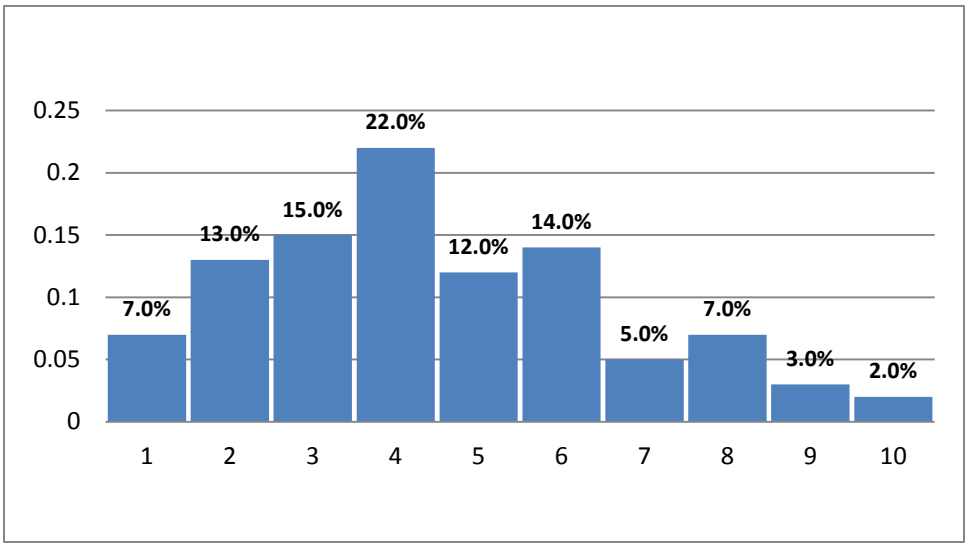


Figure 2.14 Relative Number of Competition Horses at Non Owner Operated Facilities

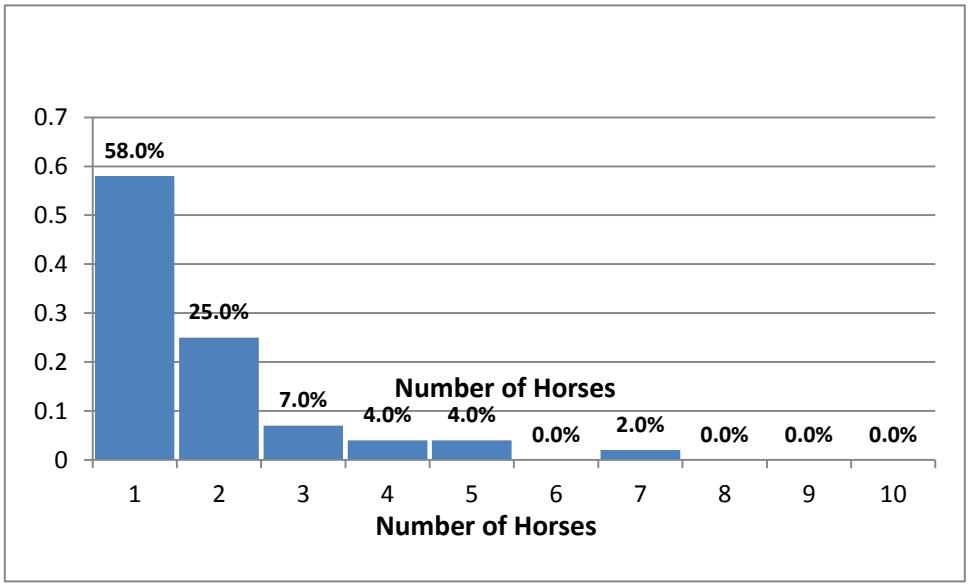


Table 2.16 Annual Revenue for Competition Horse Owners

Category of Revenue	Median Annual Revenue	Highest in the Survey	Lowest (non-zero) in the Survey
Sale of Horses	$ 1,950	$ 80,000	$ 200
Training Horses	$ 800	$ 16,000	$ 100
Boarding Horses	$ 750	$ 16,000	$ 1,250
Professional Service Income	$ 380	$ 76,000	$ 100
Equestrian Awards	$ 320	$ 10,000	$ 175
Leasing Horses	$ 190	$ 6,000	$ 150
Racing Horse Purses	$ 140	$ 10,000	$ 50
Stud Fees	$ 130	$ 5,000	$ 500
Sale of Property or Equipment	$ 130	$ 15,000	$ 100
Rental of Land	$ 90	$ 2,500	$ 200
Rental of Equipment	$ 30	$ 2,000	$ 10
Interest			
Total:	**$ 2,137**		

A large percentage of competition horses indicate no revenues or generate revenues in a few categories which explains why the medians are low compared to the extreme values reported.

Table 2.17 Annual Expenses for Competition Horse Owners

Category	Median Annual Expense	Highest in the Survey	Lowest (non-zero) in the Survey
Maintenance of Horses	$ 4,000	$ 100,000	$ 40
Horse Activities	$ 1,100	$ 40,000	$ 40
Labor	$ 950	$ 32,000	$100
Investments	$ 500	$ 70,000	$ 20
Maintenance of Facilities	$ 450	$ 20,000	$ 50
Total:	**$ 6,500**		

Average expense per competition horse is $3,952.

Owners of Horses for Racing

Racing horse owner operations provide a much different profile. The most important revenue sources are the purses from racing and to some extent, boarding and sale of horses. But revenue sources from all other sources than purses are from outside of Indiana for the most part. Racing Horse Owners tend to attract revenues from many sources.

Table 2.18 Annual Revenue For Racing Horse Owners

Category of Revenue	Median Annual Revenue	Highest in the Survey	Lowest (non-zero) in the Survey
Racing Horse Purses	$ 29,400	$1,100,000	$ 400
Boarding Horses	$ 8,700	$ 300,000	$ 960
Sale of Horses	$ 5,200	$ 150,000	$ 350
Training Horses	$ 4,200	$ 540,000	$ 7,330
Equestrian Awards	$ 3,850	$ 118,000	$ 5,600
Stud Fees	$ 2,400	$ 40,000	$ 500
Rental of Land	$ 500	$ 12,100	$ 2.500
Professional Service Income	$ 300	$ 10,000	$ 100
Sale of Property or Equipment	$ 100	$ 1,700	$ 100
Leasing Horses			
Interest			
Rental of Equipment			
Total:	**$ 41,300**		

Racing appears to be a larger scale enterprise, at least in terms of revenues and costs. Typical of larger scale enterprises, wages and daily operating expenses are the more significant categories of cost. The racing enterprises tend to engage in activities, not only on the revenue side but also on the expense side, that extend beyond the Indiana boundaries. Average cost per racing horse is $7,131.

Table 2.19 Annual Expenses for Racing Horse Owners

Category	Median Annual Expense	Highest in the Survey	Lowest (non-zero) in the Survey
Maintenance of Horses	$ 20,000	$ 550,000	$ 10
Labor	$ 18,200	$ 367,000	$ 200
Horse Activities	$ 5,100	$ 95,000	$ 300
Investments	$ 3,860	$ 100,000	$ 250
Maintenance of Facilities	$ 3,800	$ 108,000	$ 1,280
Total:	**$ 41,350**		

Owners of Horses for Work

This category includes traditional work horses but also a number of horses bred for other purposes that have this alternative field. Work horses are defined in the survey as "equine used for work, hauling, or transportation; equine used for commercial carriage rides, police patrols, teaching." The operations with work horses are often connected to other agricultural operations and may also include a variety of special uses. The major revenue sources are boarding and professional services offered.

Table 2.20 Annual Revenue for Work Horse Owners

Category of Revenue	Median Annual Revenue	Highest in the Survey	Lowest (non-zero) in the Survey
Professional Service Income	$ 9,000	$ 30,000	$ 100
Boarding Horses	$ 8,200	$ 40,000	$ 1,000
Rental of Land	$ 2,400	$ 12,000	$ 100
Stud Fees	$ 1,100	$ 5,000	$ 500
Sale of Horses	$ 900	$ 10,000	$ 1,000
Equestrian Awards	$ 200	$ 1,000	$ 10
Training Horses	$ 100	$ 500	$ 10
Leasing Horses			
Interest			
Racing Horse Purses			
Sale of Property or Equipment			
Rental of Equipment			
Total:	**$ 23,879**		

Annual expenses for the operations with work horses are largely wages, equipment expenses and day to day maintenance. However, most of the expenses are incurred in Indiana.

Table 2.21 Annual Expenses for Work Horse Owners

Category	Median Annual Expense	Highest in the Survey	Lowest (non-zero) in the Survey
Labor	$ 145,000*	$ 551,500	$116,000
Investments	$ 24,050	$1,260,000	$ 5,000
Maintenance of Horses	$ 14,050	$ 139,000	$ 4,500
Maintenance of Facilities	$ 5,550	$ 15,900	$ 2,400
Horse Activities	$ 600	$ 40,000	$ 200
Total:	**$ 41,350***		

*A disproportionate number of large operations appeared in the survey

Economic Impact of the Equine Owners

The economic impacts of equine owners are projected from the survey results to the findings from the 2002 census of horses. These estimates are generated using IMPLAN assuming the horse population is approximately 160,000 animals and the number of equine operations to be approximately 34,000 as indicated in the 2001 study

Table 2.22 Economic Impact of Equine Owners 2010

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	**2,020**	**1,814**	**3,834**
Labor Income	**$66,875,060**	**$72,358,650**	**$109,253,392**
Contribution to State GDP	**$412,300,000**	**$205,531,550**	**$617,831,550**

Table 2.23 Tax Revenue Impact of Equine Owners 2010

State and Local Tax Impact	
Employee Compensation Taxes	$ 144,305
Indirect Business Tax	$ 50,506,750
Taxes on Households	$ 3,187,079
Taxes on Corporations	$ 3,174,710
Total State and Local Taxes	**$ 57,012,844**
Federal Tax Impact	
Employee Compensation Taxes	$ 12,781,300
Proprietor Income Tax	$ 1,191,547
Indirect Business Tax	$ 6,349,420
Taxes on Households	$ 7,256,480
Taxes on Corporations	$ 6,493,725
Total Federal Taxes	**$ 34,072,472**

The Indiana Horse Show Industry

This is the first comprehensive study ever conducted of the Horse show industry in Indiana. The survey provides an interesting perspective on the horse show industry. Most shows occurred in the central part of the State while 25% of the shows occurred in the southern part of the State and 16% in the northern part of the State. While most counties have one organization conducting shows, some counties have as many as four or five. The number of shows in any county ranges from 1 to as many as 27. Many of the organizations conducting shows operate on a small scale, running one show per year, typically breed specific, while some organizations operate at a more ambitious scale, conducting multiple shows per year or large shows once a year. This difference affects the structure of revenues and expenses.

The distinguishing characteristic of the horse shows is that they tend to be breed or discipline specific. Nine categories were identified with shows for Quarter Horses (38 percent of shows) and the general all breed shows (25 percent of shows) having the greatest show activity. The number of horses participating at a show ranges from as many as 850 horses to small shows with 25 horses participating.

Table 2.24 Horse Shows by Breed or Purpose

Breed	Percentage of Shows	Percentage of Horses Participating
Quarter Horses	39	51
All Breeds	30	15
Thoroughbreds	13	9
Saddlebreds	6	4
Barrel Racing	5	2
Warmbloods	4	14
Reining	2	4
Appaloosas	1	1

The average number of horses participating in a show is 88.87 horses per show with a range of 825.

Table 2.25 Relative Distribution of Horse Shows by Number of Horses Participating

Number of Horses Participating	Percentage of Shows
Under 100 horses	38%
100 to 300 horses	38%
300 to 500 horses	14%
500 or more horses	10%

These shows generate revenues. Some attract sponsorship and 45.6% indicate that there is financial sponsorship with an average of $14,070 per sponsored operation and an average of $5,081 per sponsored show. The amounts show substantial variation as the range of sponsorship was $134,828.

In addition to sponsorship, revenues are drawn from the participants and those attending the shows. The median values for the operations in the survey are in Table 2.26.

Table 2.26 Horse Show Revenues By Operation

Source of Revenue	Median Revenue per Operation	Highest Revenue in the Survey	Lowest (non zero) Revenue in the Survey
Stall Fees	$ 4,950	$ 226,658	$ 60
Entry Fees	$ 4,650	$ 294,787	$1,125
Other Sources	$ 1,800	$ 567,176	$ 250
Sponsorship	$ 780	$ 134,828	$ 200
Concessions	$ 400	$ 14,845	$ 150
Office Services	$ 195	$ 28,160	$ 75

On a per show basis, the breakdown is somewhat different. The revenue sources detailed in the following table indicate that sponsorship is a significant revenue source for shows, indicating that the larger operations likely gain recognition and sponsorship and consequently more revenue.

Table 2.27 Horse Show Revenues By Show

Source of Revenue	Median per Show	Highest in the Survey	Lowest (non zero) in the Survey
Stall Fees	$ 1,303	$226,600	$ 60
Entry Fees	$ 1,230	$296,000	$1,125
Other Sources	$ 471	$567,170	$ 250
Sponsorship	$ 205	$135,000	$ 200
Concessions	$ 105	$ 14,800	$ 150
Office Services	$ 51	$ 28,100	$ 75
TOTAL Per Show	**$ 3,365**		

Relatively, shows generated 19.3% of the revenues from entry fees and 16.4% from stall fees. But only 0.7% from concessions and 3.4% from office support services. The remaining 47.1% is from other sources such as budgets from breed specific organizations.

Horse show expenses vary substantially as the scale of shows varies. A categorical listing of show expenses is detailed in Table 2.28 below. The show expense median is $7,085 per operation. Most shows do not incur veterinary expenses.

Table 2.28 Horse Show Expenses Per Operation

EXPENSES	Median Expenses	Highest Value in the Survey	Lowest Value (non zero) in the Survey
Other	$1,050	$706,000	$ 200
Facility Maintenance	$ 1,400	$ 19,750	$ 250
Judging Expense	$ 650	$ 19,750	$ 250
Equipment Rental	$ 600	$ 30,600	$ 350
Wages & Benefits	$ 570	$ 134,000	$ 800
Insurance Expense	$ 540	$ 4,000	$ 300
Facility Rental	$ 520	$ 13,800	$ 100
Utilities	$ 350	$ 8,400	$ 250
Office Supplies	$ 210	$ 2,600	$ 50
Advertising	$ 190	$ 8,400	$ 120
EMT Services	$ 130	$ 15,400	$ 100
Farrier Services	$ 100	$ 1,050	$ 10
Awards	$ 850	$ 50,200	$ 150
Veterinary Services	$ 25	$ 500	$ 10
Total	**$ 7,085**		

A profile of the Horse Show industry in Indiana indicates that shows are different in terms of where revenues come from and the types of expenses incurred, largely depending on the scale as well as the type of operation. The following table illustrates these differences.

Table 2.29 Percentages of Shows with Specific Sources of Revenue and Categories of Expenses

Source of Revenue	Percentage of Expenses		Category of Expense	Percentage of Shows That Have This Expense
Stall Fees	62.0%		Awards	87.3%
Sponsorship	45.6%		Insurance	81.0%
Office Fees	49.4%		Advertising	62.0%
Entry Fees	82.3%		Facility Maintenance	50.6%
			Judges	49.4%
			Office Supplies	49.4%
			Facility Rental	46.8%
			EMT	43.0%
			Utilities	30.4%
			Equipment Rentals	20.2%
			Farrier Services	16.4%
			Veterinary Services	15.2%
			Wages & Salaries	7.6%

Although most shows rely on entry fees as a source of revenue, entry fees comprise a relatively small proportion (19.3%) of the revenue picture. It is likely that many of the smaller operations are subsidized by breed specific organizations. Most shows provide awards which are a significant expense and it is likely that either facilities are rented or they are owned, indicating that facility rental and facility maintenance along with utilities may be exclusive in some cases. It is anticipated that rental contracts may provide an umbrella of expense coverage that would not be delineated by the shows such as insurance, utilities, or equipment.

Economic Impact of the Horse Show Industry

The economic impact of shows represented in the survey responses is summarized in Table 2.29 below. These estimates are generated using IMPLAN assuming that approximately 90% of the shows were represented in the survey.

Table 2.29 Economic Impact of the Horse Show Industry

	Direct Effect	Indirect and Induced Effect	Total Impact
Employment	**6.5**	**5.8**	**12.3**
Labor Income	**$157,697**	**$171,101**	**$328,798**
Contribution to State GDP	**$1,445,537**	**$766,135**	**$2,211,672**

The horse show industry generates by direct payment as well as from indirect and induced economic activity a total of $185,362 in tax revenues of which $93,355 is in various forms of federal taxes and $92,007 returns in State and local taxes of various forms.

Table 2.30 Tax Revenue Impact of the Horse Show Industry 2010

State and Local Tax Impact	
Employee Compensation Taxes	$ 664
Indirect Business Tax	$ 66,129
Taxes on Households	$ 7,299
Taxes on Corporations	$ 17,915
Total State and Local Taxes	**$ 92,007**
Federal Tax Impact	
Employee Compensation Taxes	$ 33,175
Proprietor Income Tax	$ 1,393
Indirect Business Tax	$ 8,250
Taxes on Households	$ 16,698
Taxes on Corporations	$ 33,839
Total Federal Taxes	**$ 93,355**

The Indiana Horse Racing Industry

There are two major race tracks in Indiana: Hoosier Park in Anderson, Indiana and Indiana Downs in Shelbyville, Indiana. The total revenue reported from all sources in 2010 was approximately $323,489,050 which included a total of $301,100,003 in wagering revenue handled through the racetrack and $82,172,315 generated for the racetrack operations. Approximately 93.1% of the revenue stems from wagering while 6.9% comes from other sources such as concessions and sale of programs. However, only 27.3% of the wagering

revenue was generated at the race tracks with 72.7% coming from off track and pari-mutuel wagering.

The racetracks combined conducted 123 Thoroughbred race days in 2010 which generated $155,218,478 in wagering revenue, 77 Quarter Horse race days with a total handle of $6,095,992, and 158 Standardbred race days generating $78,400,533 in wagering revenue.

Table 2.31 Racetrack Revenues by Breed

	Total Wagering Revenue	**Number of Race Days**	**Revenue per Race Day**
Thoroughbreds	$155,218,478	123	$1,543,150
Standardbreds	$ 78,400,533	158	$ 592,507
Quarter Horses	$ 6,095,992	77	$ 88,457

Thoroughbred racing appears to be the big attraction and the public reputation of the race tracks, generating the most wagering revenue as well as the most wagering revenue per day. These Indiana racetracks actually engage in more days of Standardbred racing. The major expenses for the racetracks, outside of wagering distributions were Wages, Salaries and Benefits with 31.4 percent, the purses which accounted for 19.5 percent of expenses, Commissions for Simulcasts at 11.2 percent, and taxes with 10.7 percent.

Table 2.32 General Operating Expenses and Taxes of the Race Tracks 2010

Expense Category	Amount in 2010	Percentage
Wages & Salaries	$13,553,281	31.4%
Operating Expenses	$10,310,489	23.9%
Advertising	$ 857,222	
Insurance	$ 612,925	
Utilities	$ 993,410	
Office Expenses	$ 76,812	
Other Expenses	$ 7,745,120	
Purses	$ 8,434,331	19.5%
Commissions	$ 4,822,213	11.2%
Taxes	$ 4,611,772	10.7%
Facilities & Equipment	$ 1,333,491	3.1%
State Taxes	$ 4,291,320	
Local Taxes	$ 320,452	

The racetracks report significant investments in land, structures, and equipment. The estimate of fair market value of these assets is summarized in Table 11.3.

Table 2.33 Value of Tangible Race Track Assets

	Amount in 2010 Dollars
Value of Structures, Equipment	$48,755,117
Land Value	$13,836,010

The race tracks report capital investments in 2010 in excess of $711,000. The race tracks report significant employment of full time, part time and seasonal employees. The survey results are summarized in Table 2.34.

Table 2.34 Race Track Employment Statistics

Employment Category	**Number of Employees**	**Average Weeks Worked**	**Average Hours per Week**
Full Time	139	52	40
Seasonal	256	29	40
Part Time	277	48	25

This employment is equivalent to 442 full time equivalent jobs.

Economic Impact of Horse Racing on the Indiana Economy.

The economic impact of the racing industry component is summarized in Table 2.35. These estimates were generated using IMPLAN.

Table 2.35 Economic Impact of Horse Racing on Indiana 2010

State and Local Tax Impact	
Employee Compensation Taxes	$ 105,344
Proprietor Income Tax	
Indirect Business Tax	$ 32,591,304
Taxes on Households	$ 2,132,472
Taxes on Corporations	$ 2,287,474
Total State and Local Taxes	**$ 37,116,593**
Federal Tax Impact	
Employee Compensation Taxes	$ 8,889,373
Proprietor Income Tax	$ 810,744
Indirect Business Tax	$ 4,074,296
Taxes on Households	$ 4,880,924
Taxes on Corporations	$ 4,321,223
Total Federal Taxes	**$ 22,976,560**

Utilizing the IMPLAN model, the tax implications of the Racing industry were estimated. The State and local tax revenues attributed to the race track industry exceed $33 million while federal tax revenues exceed $20 million.

Table 2.36 Direct and Indirect Tax Revenue Derived From the Race Tracks 2010

	Direct Effect	**Indirect and Induced Effect**	**Total Effect**
Employment	**1,182**	**1051**	**2233**
Labor Income	**$ 37,138,434**	**$ 44,650,168**	**$ 81,788,602**
Contribution to State GDP	**$262,648,050**	**$139,145,832**	**$401,793,882**

Section III Entrepreneurship Results

The Entrepreneur Survey

Many of the equine enterprises are small scale operations, often involving one or two horses and likely to be a part of another enterprise. Many operations are not even considered as business enterprises as the purpose may be recreation. There are, however, a number of small operations that view themselves as entrepreneurial enterprises, investing their own resources and taking risks to initiate a business enterprise on a small scale.

A survey was incorporated into the business study to identify patterns and trends of entrepreneurship in the equine industry. When asked about the utilization of the internet in their businesses, a significant percentage of respondents have a website and are generating revenue from the web site. Most prepare financial statements and are legally registered as a business. However, not many have a business plan, many do not see the equine business as a primary source of income, and a substantial number have employment outside of their businesses. Although there is a significant range, 0 to 75% that claim revenue generated from their websites, the average percentage of these equine businesses that draw revenue from the internet was 24.17%.

In this section of the survey, a series of questions designed to measure five different components of the entrepreneurial process were asked. The five sets of questions, covered below, were:

1. Actions taken to start and run an equine business
2. Attitudes toward being an entrepreneur
3. Perceived approval for starting a business
4. Perceived ability to be a successful business owner
5. Intention to become an equine business owner

These questions were drawn from a stream of entrepreneurship research related to Icek Ajzen's theory of planned behavior. This theory suggests that the actions required to start and run a business (#1, above) are influenced by several factors (#2 through #4 above) that contribute to what we call entrepreneurial intent (#5). The stronger these factors are, the more likely a person is to start a business. In general, a region interested in creating new businesses and ultimately new jobs and sources of tax revenue has an interest in creating conditions where people are more likely to start businesses. Examining all of these categories together, it appears that they are self-reinforcing. That is, people with approval from their social network are more likely to undertake actions toward making their business successful. The more supportive a person's network, the higher a person's perceive chances of success, their intention to become a business owner, and the more positively they viewed business ownership as a career option.

Actions Taken to Start and Run an Equine Business

There were 96 of the 520 respondents that completed this portion of the survey. These were people who self-identified as running an equine business. It is interesting to note which types of actions respondents had taken in order to start and run their own equine businesses. Table 3.1 provides a breakdown of the responses. Surprisingly, better than three quarters of those who responded said that they kept financial statements. In fact, more people kept financial statements than any other business-related activity.

In most cases, the equine business functioned as supplementary income and/or a second job. Only 31% of respondents listed their equine business as their primary source of income, and over half (58%) reported having another job beyond their equine business. Interestingly, conversations with some respondents revealed that many did not consider their equine outfit to be an actual business, and considered it more of an activity or hobby. Just over 40% of respondents had a website for their equine business and better than 60% have registered it as a legal entity.

Table 3.1 –Entrepreneurial Actions Taken with Regard to Their Equine Businesses.

	Yes	**No**
Does this business have its own website?	49%	51%
Does this business keep financial statements?	76%	24%
Is there a formal written business plan for this business?	41%	59%
Has this business been registered as a legal entity?	62%	38%
Is this business your primary source of income?	31%	69%
Do you hold a job in addition to working for this business?	58%	42%

Attitudes Toward Being an Equine Entrepreneur

Attitudes toward being an entrepreneur were examined. This section of the survey was open to business owners and non-business owners alike. Up to 520 respondents answered each question, typically ranging from 510 to 520 respondents throughout. Although many people hold the idea of being a business owner in high esteem, others may see the life as an entrepreneur as less attractive for a variety of reasons. The more positive a person's attitude toward entrepreneurship, the more likely they are to take the risks and actions necessary to get the business off the ground. Table 3.2 outlines the survey results for four related questions. The first column indicates the four items that were used to measure the attitudes toward being an entrepreneur.

Overall, the average shows that almost 51% of respondents are favorable toward the idea of being an entrepreneur (i.e., agreed or strongly agreed with the proposition), while only just over 19% think unfavorably of being a business owner (i.e., disagreed or strongly disagreed with the idea). In general, this shows that positive attitudes toward entrepreneurship are more than twice

as common as are negative attitudes.

Approximately 58% of respondents agree or strongly agree with the idea that it is satisfying to be an entrepreneur. More than half of respondents said that they would start their own equine business if they had resources. Combining this with other results showing the level of support and commitment to starting a business, this makes a case that, for some, one key obstacle to starting a business and building value in the economy is a lack of resources. Although this survey did not explore different types of resource availability to aspiring business owners, this issues seems worthy of further exploration.

Table 3.2 – Attitudes Toward Being a Business Owner.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advantageous to Be Business Owner	5.9%	10.8%	44.6%	27.7%	11.0%
Would Start if Had Resources	9.4%	12.5%	25.0%	29.6%	23.6%
Satisfying to be Entrepreneur	8.2%	9.5%	24.3%	34.4%	23.7%
Entrepreneur is Best Option	8.7%	12.2%	25.7%	31.9%	21.6%

The survey results provide a useful insight into the entrepreneurial attitude and vision of many of the small equine industry participants.

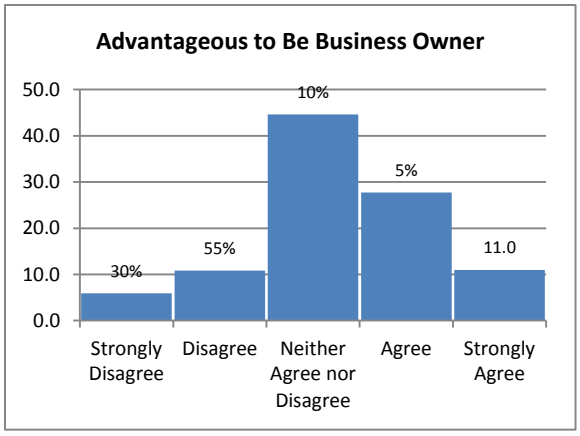
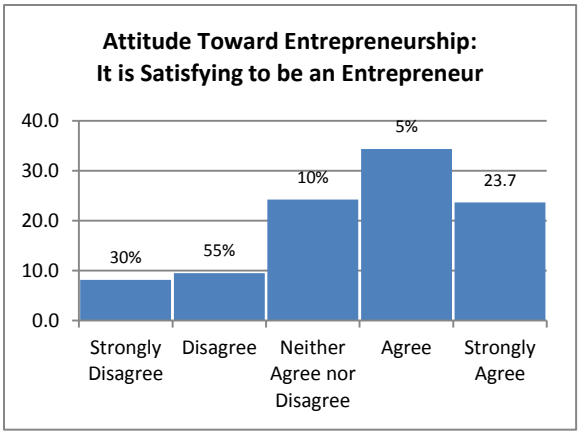


Figure 3.1a Attitude Toward Entrepreneurship

When asked if it's advantageous to be a business owner, 11.0% strongly agreed and 27.7% agreed, while 10.8% disagreed and 5.9% strongly disagreed.

Figure 3.1b Attitude Toward Entrepreneurship



When asked if they would start a business if they had the resources, 23.6% strongly agreed and 29.6% agreed. But 12.5% disagreed and 9.4% strongly disagreed. 25.0% had no opinion.

Figure 8.1c Attitude Toward Entrepreneurship

Responding to the inquiry if it is satisfying to be an entrepreneur, 23.7% strongly agreed, 24.4% agree, 9.5% disagree and 8.2% strongly disagree.

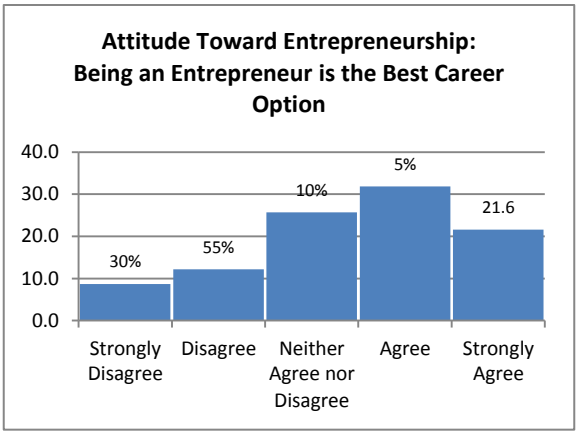
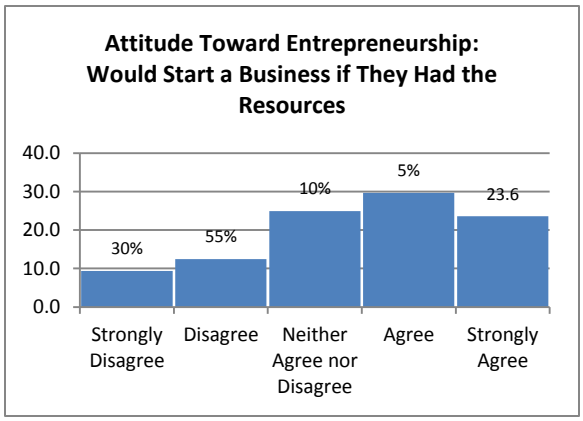


Figure 8.1d Attitude Toward Entrepreneurship

And when asked if being an entrepreneur is the best career option, 21.6% strongly agree, 31.9% agree, 25.7% neither agree nor disagree, 12.2% disagree, and 8.7% strongly disagree.



Perceived Approval for Starting an Equine Business

Research has shown that support from a person's social network can help spur them to start and run their own business. The levels of support that respondents felt they had from three different groups of people: close family, friends, and colleagues. Table 7.3, indicates fairly high levels of support from all three groups and, more importantly, apparently very little resistance to the idea of being an entrepreneur.

The highest levels of support came from friends, with better than two thirds of respondents answering that their friends either approved or strongly approved of the decision. When we look at the ratio of favorable to unfavorable approval, favorable outweigh unfavorable by between 3 (for family) and 12 (for friends) times. So, even in the case of the more cautious family members, our respondents reported being in a largely supportive environment for entrepreneurship.

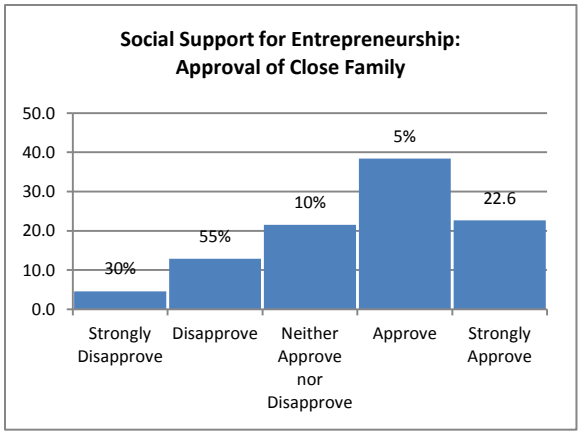
One point of interest in the results shows a much greater divergence of opinion among family members, as opposed to friends or colleagues. Respondents reported that 17.5% of family did not approve of them becoming an entrepreneur, a number far higher than those of friends (5.5%) and colleagues (6.5%). There is an implicit suggestion here that people will tend to gravitate toward friends and colleagues who are supportive of the decision to be an entrepreneur, but there may not be the same luxury or incentives in choosing family members who hold similar views. When we looked at the effect of a supportive social network (i.e., approval of friends, family, and colleagues), we found that people with more supportive networks were more likely to have a website for their business and to have done a business plan, both of which can be crucial to the success of a business.

Table 3.3 – Results From Questions That Looked at Respondents' Social Network and Perceived Support to Start Their Own Business

	Strongly Disapprove	**Disapprove**	**Neither Approve nor Disapprove**	**Approve**	**Strongly Approve**
Approval of Close Family	4.6%	12.9%	21.5%	38.4%	22.6%
Approval of Friends	1.5%	4.0%	26.7%	46.0%	21.7%
Approval of Colleagues	1.9%	4.6%	38.7%	38.7%	16.2%

These are the survey results:

Figure 3.2a Social Support for Entrepreneurship Approval of Close Family:



22.6% strongly approve, 38.4% approve, while 21.5% neither approve or disapprove, 12.9% disapprove, and 4.6% strongly disapprove.

Figure 3.2b Social Support for Entrepreneurship Approval of Friends:

While 21.7% strongly approve and 46.0% approve, 26.7% neither approve or disapprove, and 4.0% disapprove while 1.5% strongly disapprove in developing an entrepreneurial enterprise.

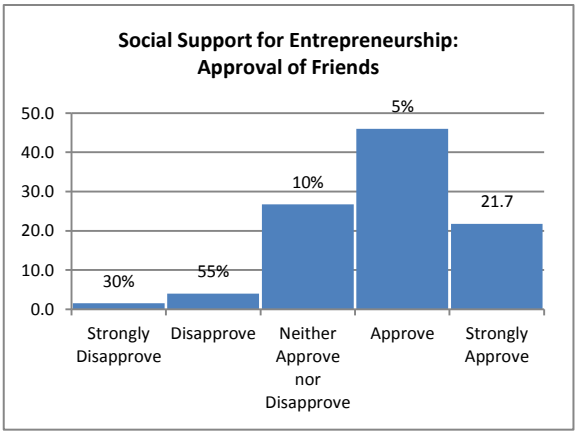
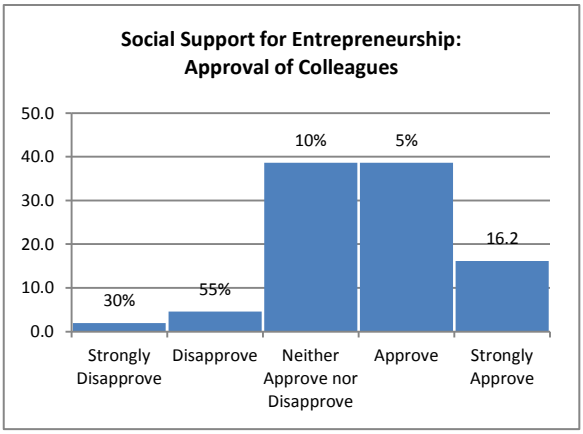


Figure 3.2c Social Support for Entrepreneurship



When it comes to the approval of colleagues, 16.2% strongly approve, 38.7% approve, while 38.7 neither approve or disapprove, 4.6 disapprove and 1.9% strongly disapprove.

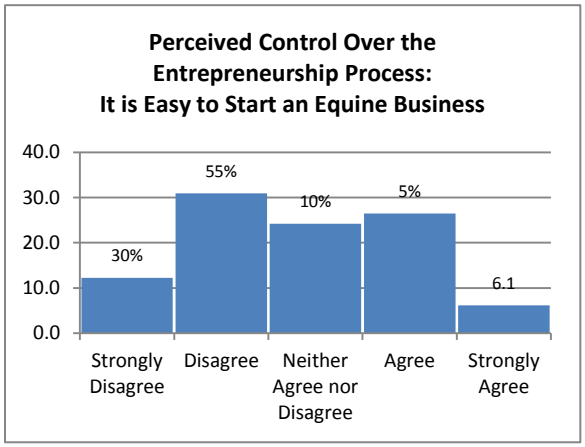
Perceived Ability to be a Successful Equine Business Owner

This group of questions was designed to assess respondents' perception of their ability to be a successful business owner. Comparing results from the preceding two groups of questions, we see that people were much more modest in their estimate of ability to succeed than they were in terms of perceived support and positive view of entrepreneurship. In the overall average, only 38% of respondents answered favorably (answered Agree or Strongly Agree) regarding their ability to be successful. In contrast, on average more than a third of respondents disagreed or strongly disagreed with the notion that they had the ability to be a successful business owner.

Table 3.4 – Questions Outlining Respondents' Perceptions of Their Ability to be a Successful Business Owner.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Easy to Start Business	12.3%	30.9%	24.2%	26.5%	6.1%
Prepared to Start Business	19.0%	34.9%	24.0%	17.6%	4.5%
Can Control Creation Process	9.3%	15.3%	26.7%	37.9%	10.8%
Know How to Start an Equine Business	10.2%	22.8%	22.0%	36.3%	8.7%
High Probability of Success	9.7%	14.1%	34.9%	33.0%	8.3%
Average	**12.1%**	**23.6%**	**26.4%**	**30.3%**	**7.7%**

Figure 3.3a Perceived Control Over the Entrepreneurial Process



While 6.1% believe it is easy to start an equine business and 26.5% agree, 24.2% neither agree nor disagree, 30.9% disagree and 12.3% strongly disagree that it is easy to start a business.

Figure 3.3b Perceived Control Over the Entrepreneurial Process

When asked if they were prepared to start an equine business, 4.5% strongly agreed that they were, 17.6% agreed, 24.0% neither agreed nor disagreed, 34.9% disagreed, and 19.0% strongly disagreed.

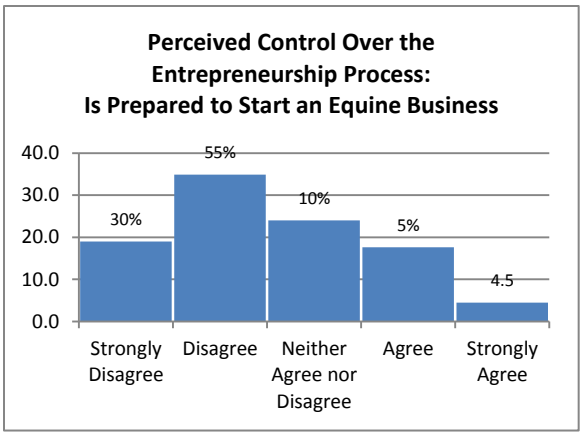
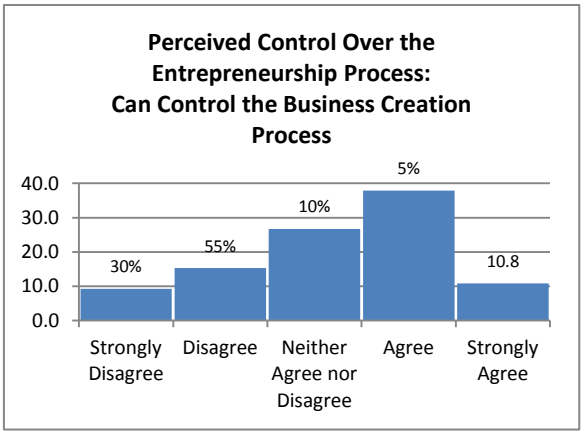
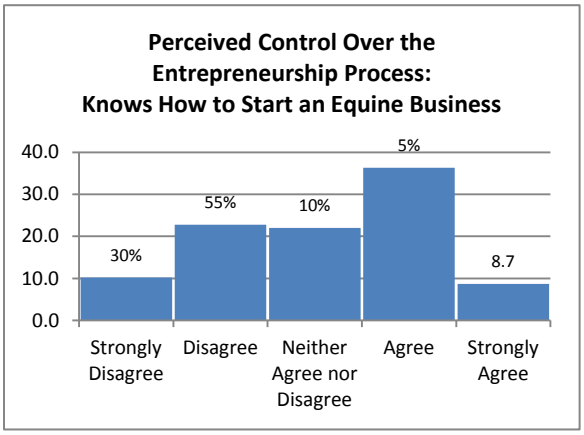


Figure 3.3c Perceived Control Over the Entrepreneurial Process



Can they control the business creation process? 10.8% strongly agree, 37.9% agree, 26.7% neither agree nor disagree, 15.3% disagree, and 9.3% strongly disagree.

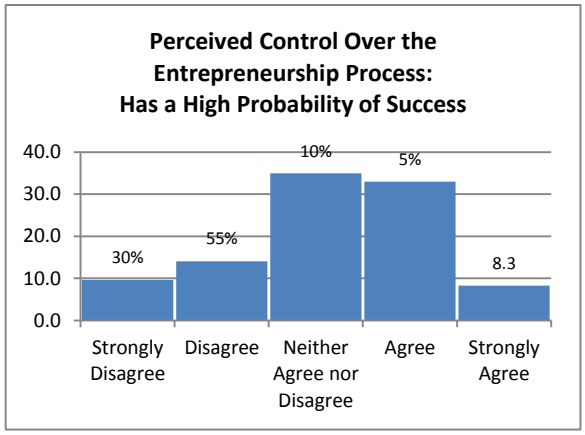
Figure 3.3d Perceived Control Over the Entrepreneurial Process



Do they know how to start a business? 8.7% strongly agree that they do, 36.3% agree, 22.0% neither agree nor disagree, 22.8% disagree, and 10.2% strongly disagree.

Figure 3.3e Perceived Control Over the Entrepreneurial Process

Do they have a high probability of success? 8.3% strongly agree, 33.0% agree, while 34.9% neither agree nor disagree, 14.1% disagree and 9.7% strongly disagree.



Intention to Become an Equine Business Owner

Our sample included both business owners and non-business owners, so we wanted to get a sense of people's intention to become an equine business owner. Both groups of people answered the same questions in this section. Table 3.5 lists the percentages of responses for each question, as well as a list of averages for each response level. On average, almost 46% of the sample responded unfavorably to questions about their intention to become an equine business owner, and just over one quarter (28.5%) responded favorably.

These results should be considered in contrast with prior assessments of entrepreneurship as a career outlined in the preceding sections. At this point in time, many of our respondents have supportive social networks, are confident in their ability to be successful as entrepreneurs, and have a positive association with being a business owner. At the same time, the results in this section indicate that many are hesitant to push forward with the formation of an equine business. It may be that the severe recession has caused people to be hesitant to start a business at this particular time, given the state of the local and national economies.

Table 3.5 – Responses Assessing Intention to Become Equine Business Owners.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Will Do Anything to Be Equine Business Owner	22.4%	30.1%	28.7%	13.7%	5.2%
Professional Goal is to Become a Business Owner	22.4%	25.7%	26.7%	15.7%	9.5%
Will Make Every Effort to Start Business	21.4%	25.9%	28.6%	16.4%	7.7%
Determined to Create Equine Business	21.9%	26.0%	25.0%	17.8%	9.3%
Have Thought Seriously About Starting Business	17.6%	16.1%	19.0%	31.6%	15.7%
Average	**21.1%**	**24.8%**	**25.6%**	**19.0%**	**9.5%**

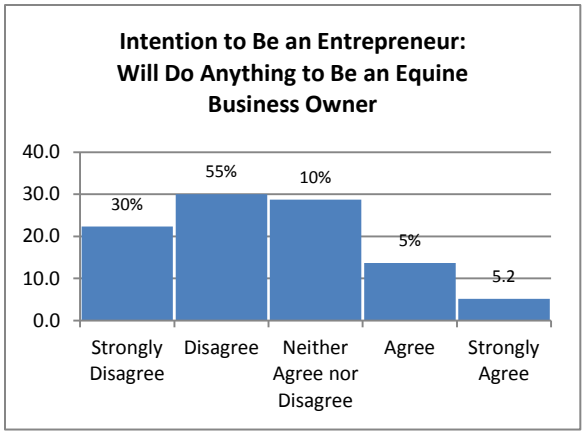


Figure 3.4a Intention to Be an Entrepreneur

Will they do anything to be an Equine business owner? 5.2% strongly agree, 13.7% agree, 28.7% neither agree nor disagree, 30.1% disagree and 22.4% strongly disagree.

Is the professional goal to become an equine business owner? 9.5% strongly agree, 15.7% agree, while 26.7% neither agree nor disagree, 25.7% disagree and 22.4% strongly disagree.

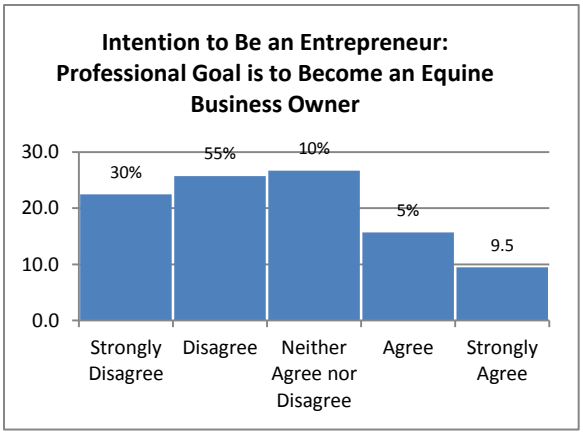
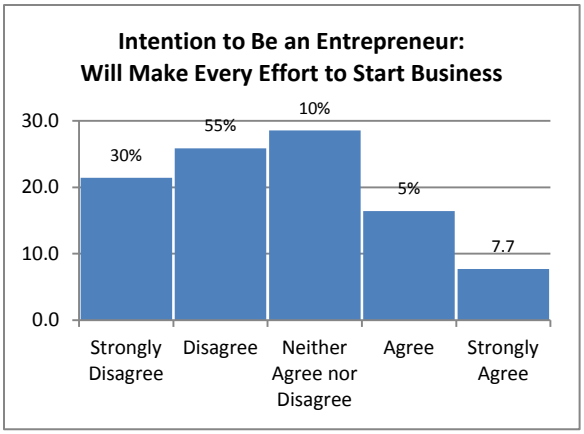


Figure 3.5b Intention to Be an Entrepreneur



Will they make every effort to start an equine business?

7.7% strongly agree, 16.4% agree, 28.6% neither agree nor disagree, 25.9% disagree, and 21.4% strongly disagree.

Figure 3.5c Intention to Be an Entrepreneur

Are they determined to create an equine business?

9.3% strongly agree, 17.8% agree, while 25.0% neither agree nor disagree, 26.0% disagree and 21.9% strongly disagree.

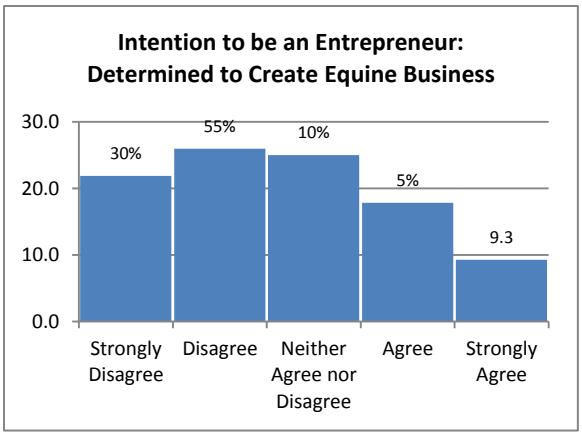
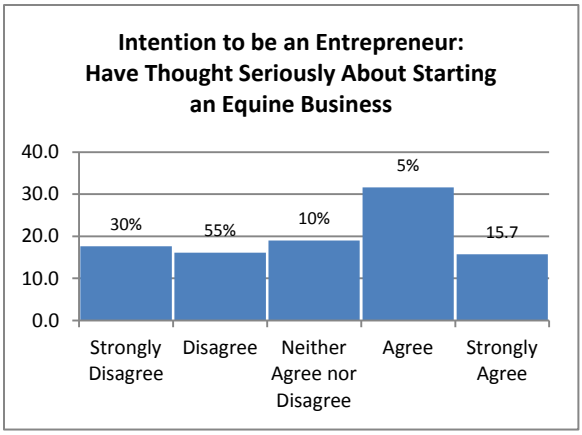


Figure 3.5d Intention to Be an Entrepreneur

Have they thought seriously about starting an equine business? 15.7% strongly agree, 31.6% agree, 19.0% neither agree nor disagree, 16.1% disagree, and 17.6% strongly disagree.



A major conclusion from the results of this portion of the survey is that most respondents have a high opinion of being an entrepreneur and express a desire to start and run their own business (see Tables 3.2 and 3.3). That said, it appears that that many feel that they lack the resources required to do so at this time, or to do so effectively. At 38%, just over a third of all respondents had registered their business as a legal entity, despite the fact that almost three quarters (76%) reported keeping financial statements. Almost 60% (see Table 3.1) of respondents who were in business reported not have completed a business plan, but better almost a third of respondents who already had their own business listed it as their primary source of income. The ability of the region in which these businesses are located to help these business owners or would-be entrepreneurs would seem to be a huge opportunity to generate wealth, jobs, and tax revenue for the equine industry and the state or region as a whole.

Section IV Results of Equine Health Study

Equine Health Study

Questions and age categories used in this section were similar to the ones used in the 2002 Indiana Equine Survey Report (http://www.nass.usda.gov/Statistics_by_State/Indiana/Equine_Summary/index.asp). A portion of the questions asked were related to the causes of death (mortality) and diseases (morbidity) categorized by age of the horses as described in table 4.1.

Table 4.1 Age categories used in the health survey

Age Categories
Less than 30 days (Foal)
1 to 6 months
6 to 18 months
18 months to 10 years
10 years and older

Horse owners were asked a series of questions regarding various health conditions that may have caused death or disease in foals and then horses older than 30 days of age. Several of these conditions covered a range of afflictions or applied to a particular disease that may be called by different names depending if layman or scientific terminology is used. Table 4.2 contains clarifications regarding the terminology used in the survey questions.

Table 4.2: Terminology used in the equine health survey questionnaire

Description	Diseases - Terminology
Heaves	Chronic Obstructive Pulmonary Disease (COPD), broken wind, recurrent airway obstruction
Other digestive disease	Digestive diseases other than colic such as diarrhea, stomach ulcers, weight loss, etc.
Strangles	*Strep. equi* infection
Respiratory disease	Diseases other than heaves and strangles
Neurologic disease	e.g. EPM, Wobbler, West Nile, etc.
Hoof problems	Other than laminitis or founder
Reproductive problems	e.g. infertility, dystocia, etc.
Laminitis	or founder

Foal Mortality & Morbidity

Survey participants were asked to report the number of foals born on their farm during 2010. They were asked to further report the number of foals born alive and deceased at birth. Follow-up questions were asked to determine how many of the foals that were alive at birth subsequently died or were euthanized.

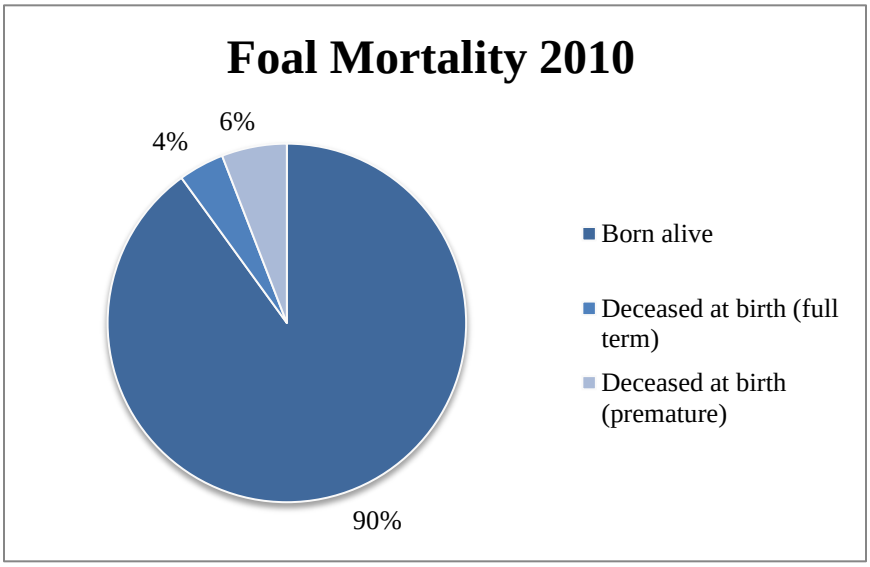
Of the 585 responses to this survey, 352 foals were reported born of which 15 were reported born dead full term and 20 born dead but premature (Fig. 1). Of the 317 foals born alive, 5 were reported to have died within 3 days of birth and another 5 died within 3 to 30 days of birth.

Premature: Fetus was aborted prior to 320 days of gestation

Full term: Reached at least 320 days gestation

Abortion and death upon parturition can be caused by a multitude of conditions including, but not limited to bacterial, viral or fungal infections, presence of twins, etc. Understanding the cause of death will allow further research to be conducted with the goal of decreasing the rate of future abortions and neonatal death.

Figure 4.1 Percentages of foals born alive and dead but full term or premature.



Mortality and Morbidity in horses older than 30 days:

Of those horses that died more than one month after birth, participants responded with the cause of death when known. These results are reported in Table 4.3 below.

Table 4.3 Causes of death of horses more than 30 days old.

	1 – 6 Months	6 – 18 months	18 Months – 10 Years	10 Years +	Percent of Total Deaths
Colic	2	1	0	11	14.4%
Other Digestive Disease	0	2	1	1	4.1%
Respiratory	0	0	1	4	5.2%
Neurologic	0	1	1	6	8.2%
Laminitis	0	1	1	5	7.2%
Limb Fracture	0	1	1	8	10.3%
Other Injury	0	0	0	2	2.1%
Leg-Hoof Problem	0	0	1	5	6.2%
Old Age	0	0	0	25	25.8%
Other	1	0	1	8	10.3%
Unknown	1	0	0	5	6.2%

Age Group	Percent of Total Deaths
1 to 6 Months	4.1%
6 to 18 Months	6.2%
18 Months to 10 Years	7.2%
10 Years +	82.5%
Total	100.0%

Additional information was gathered from these 585 horse owners regarding diseases afflicting the horse population during 2010. The summary of these responses is found in Table 4.4.

Table 4.4 Causes of diseases in the horse population in 2010 by age.

	Under 1 Month	1 – 6 Months	6 – 18 Months	18 Months - 10 Years	10 Years +	Percent of all Health Afflictions
Colic	2	0	4	58	90	13.5%
Other Digestive	19	10	1	12	33	6.6%
Heaves	0	0	0	2	18	1.8%
Strangles	1	0	0	4	2	0.6%
Respiratory	6	7	1	23	15	4.6%
Neurologic	0	0	0	9	10	1.7%
Limb Fracture	2	1	1	5	8	1.5%
Other Injury	7	11	6	72	61	13.8%
Laminitis	0	0	2	17	38	5.0%
Lameness	8	2	3	75	120	18.3%
Hoof Problems	6	1	2	74	73	13.7%
Eye Problems	7	1	2	28	48	7.6%
Reproductive Problems	2	0	1	32	13	4.2%
Other	4	0	1	11	27	3.8%
Unknown	1	0	0	6	33	3.5%

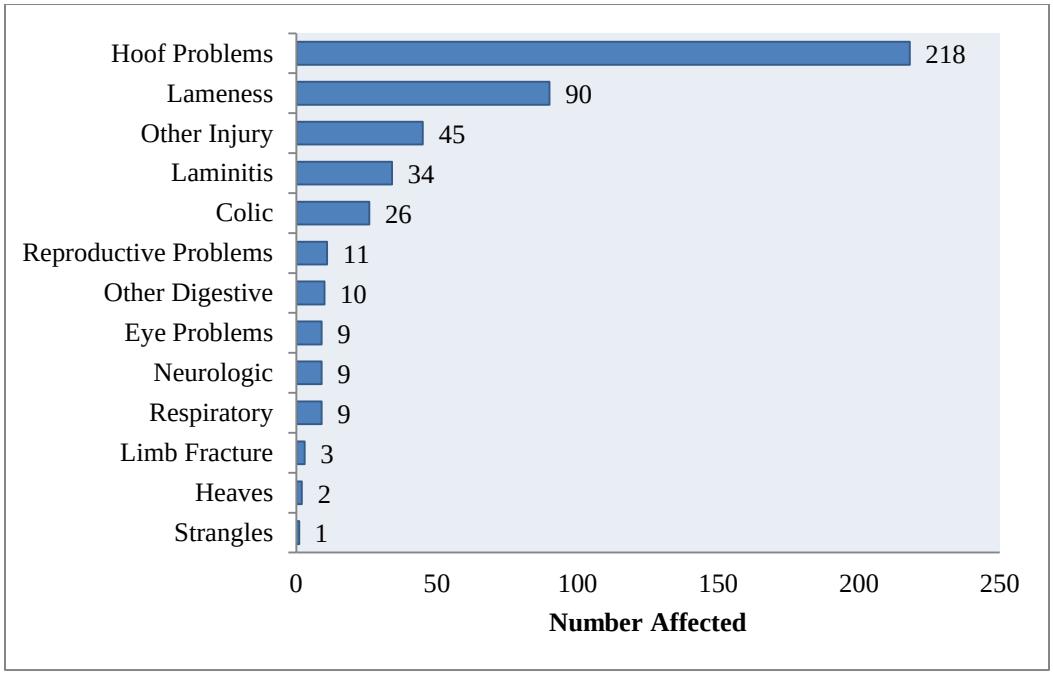
Loss of Use

A focal point of the health portion of the study was to determine the primary conditions contributing to the loss of use of horses. From this information, the condition causing the

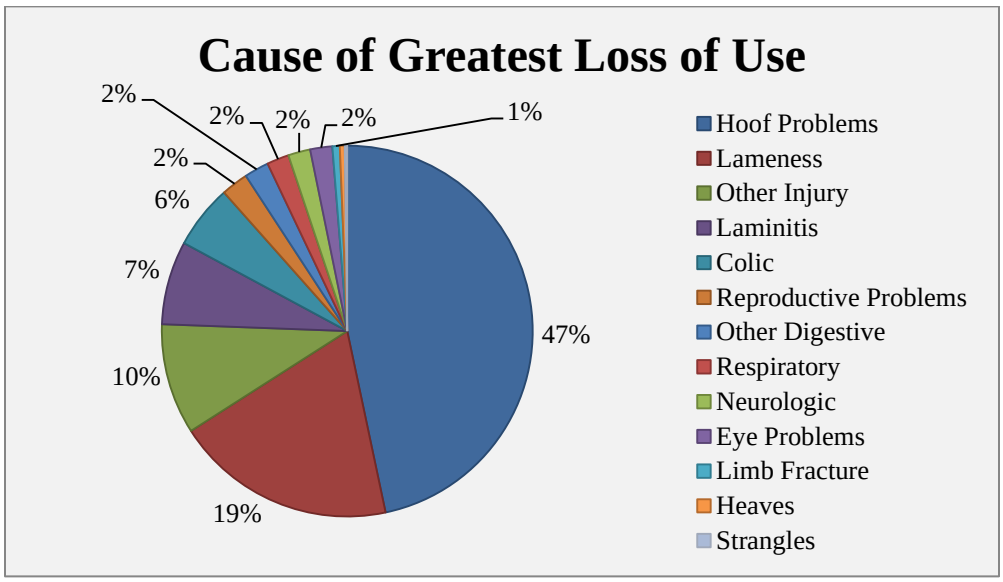
greatest number of days of lost use was calculated (Fig. 4.2). Time spent for treatment and rehabilitation from an injury or illness constitutes a lost opportunity to generate an income or just enjoy riding the horse. This loss of use amounts to a significant reduction in income for the individual horse owner and the industry.

Figure 4.2 Conditions afflicting horses during 2010 that caused the greatest total number of horses lost use based on absolute (A) and relative (B) days.

A.



B.

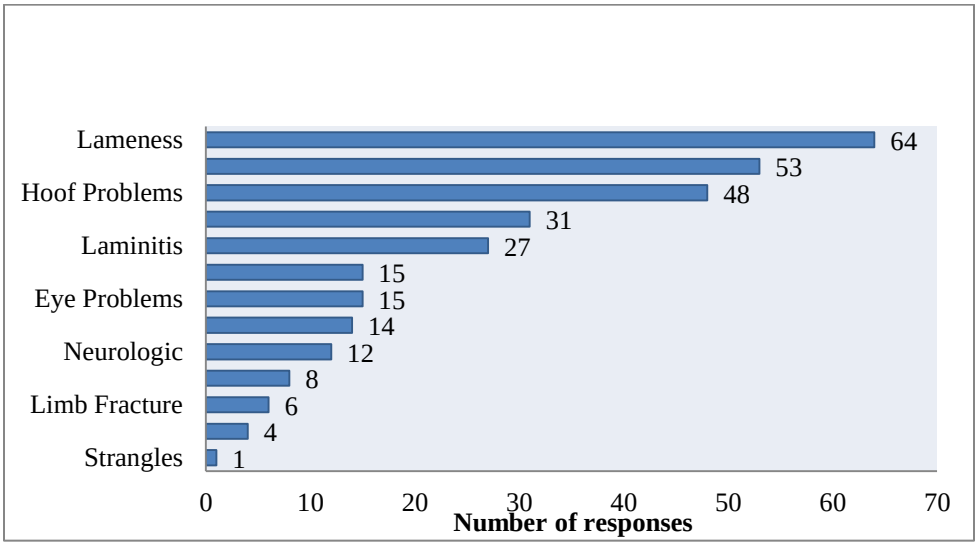


Cost Due to Loss of Use

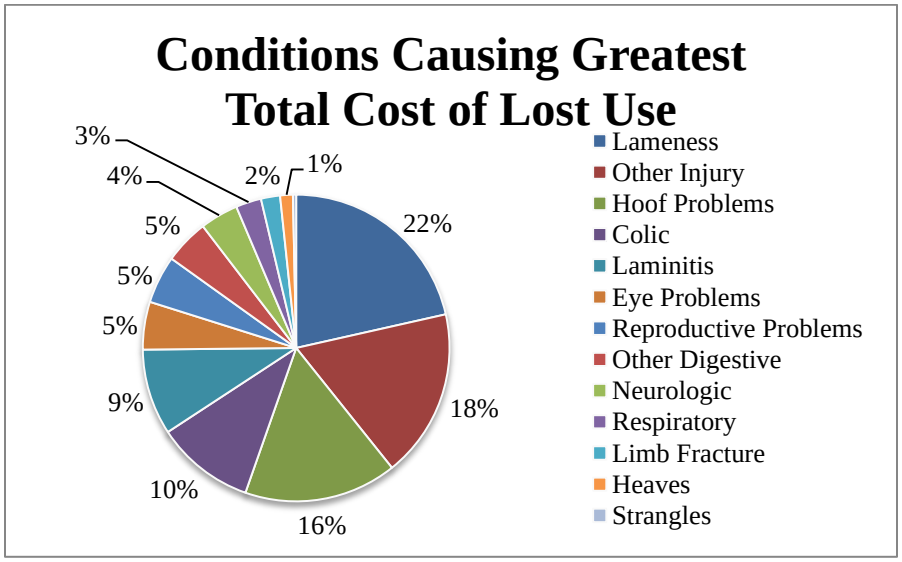
Respondents estimated that the total cost to remedy the affliction along with an estimate of the cost of loss of use was $803,959.50. This represents an average of $2,536 for each of the 317 cases reported with a range of $20 to $70,000 and median of $500.Projected to a population of 160,000 horses, the estimated annual cost is $80,000,000 for the loss of use and costs incurred treating these afflictions. Conditions reportedly causing the greatest total cost are ranked by frequency in Fig. 4.3.

Figure 4.3 Conditions resulting in the greatest total cost including cost of lost use based on absolute (A) and relative (B) number of horse owner responses.

A.



B.



Respondent Interest in Future Research:

Participants were asked to identify the three conditions that they would recommend for further research. The results of this inquiry are summarized in Table 4.5.

Table 4.5 Top Three Conditions Requiring Further Research

	1st	2nd	3rd	Total
Colic	176	73	48	297
Leg and Hoof	68	79	72	219
Laminitis	74	94	41	209
Neurologic	32	40	50	122
Reproductive	28	27	27	83
Injury	20	28	31	79
Respiratory	20	22	26	68
Other	21	12	27	60
Overweight	8	15	36	59
Other Digestive	11	18	22	51
Limb Fracture	8	15	22	45
Heaves	5	18	20	43
Chronic Weight Loss	5	12	25	42

Examining the highest priority condition, it appears that among this sample group, colic is the highest priority for many participants. The conditions that appeared most frequently in responses were colic, leg and hoof problems, and laminitis.

When asked to identify the condition that resulted in an "others" classification, the results were numerous with many conditions identified by a single respondent. The issues that had multiple responses were Cushing's Disease and EPM.

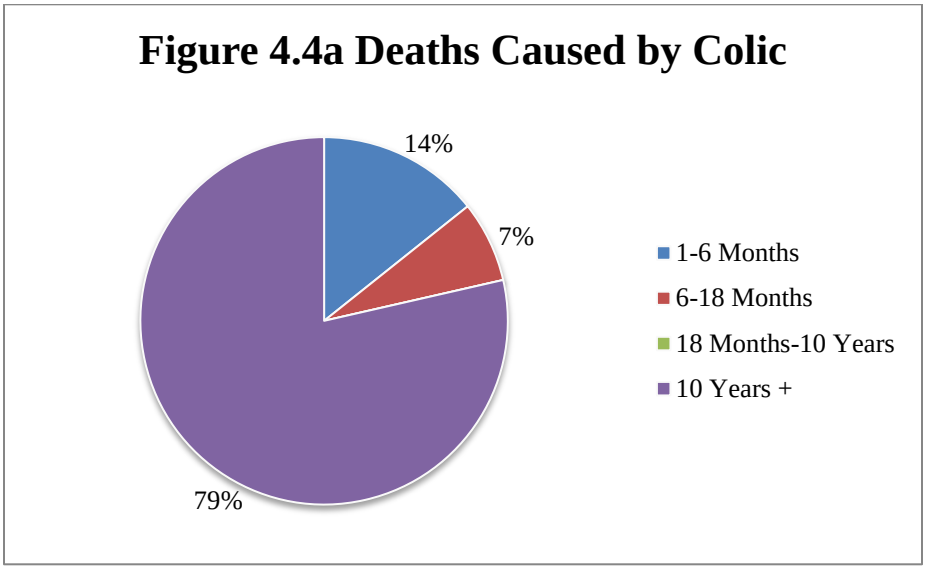
Equine Deaths and Diseases by Cause

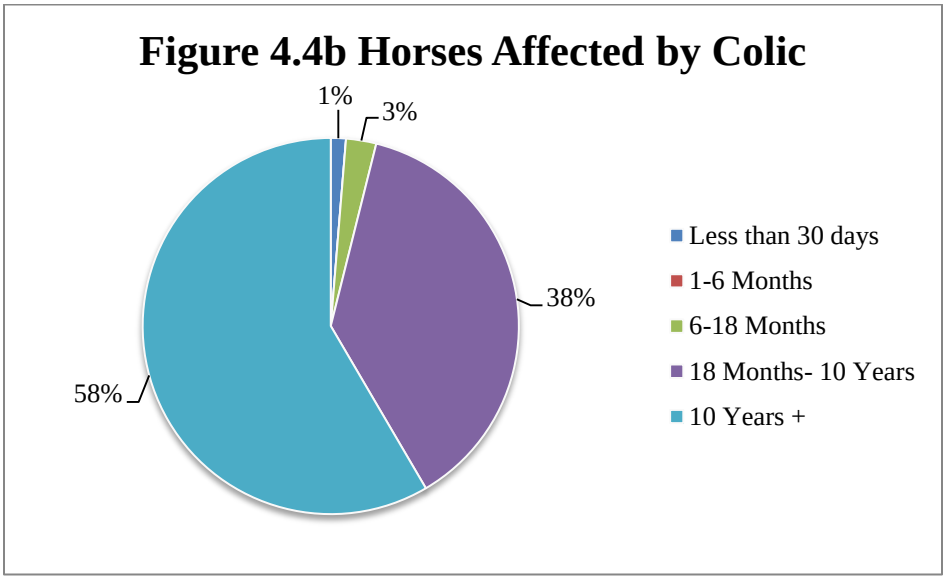
- Deaths between birth and 3 days of age: 5
- Deaths between 3 days and 30 days of age: 5
- Deaths after 30 days of age: 97

Deaths Caused and Horses Affected by Colic

Colic is a general term used to describe abdominal pain in the horse and is one of the largest health issues facing horses today. It is often very difficult to determine the specific cause of a bout of colic. A few of the leading causes include abrupt changes in feed or weather, parasite infestation and overexertion. The clinical signs of colic can also vary, but often include kicking and looking towards the abdomen, pawing, frequently lying down and rising, in appetence and general discomfort. Although colic can often be treated medically it will occasionally require

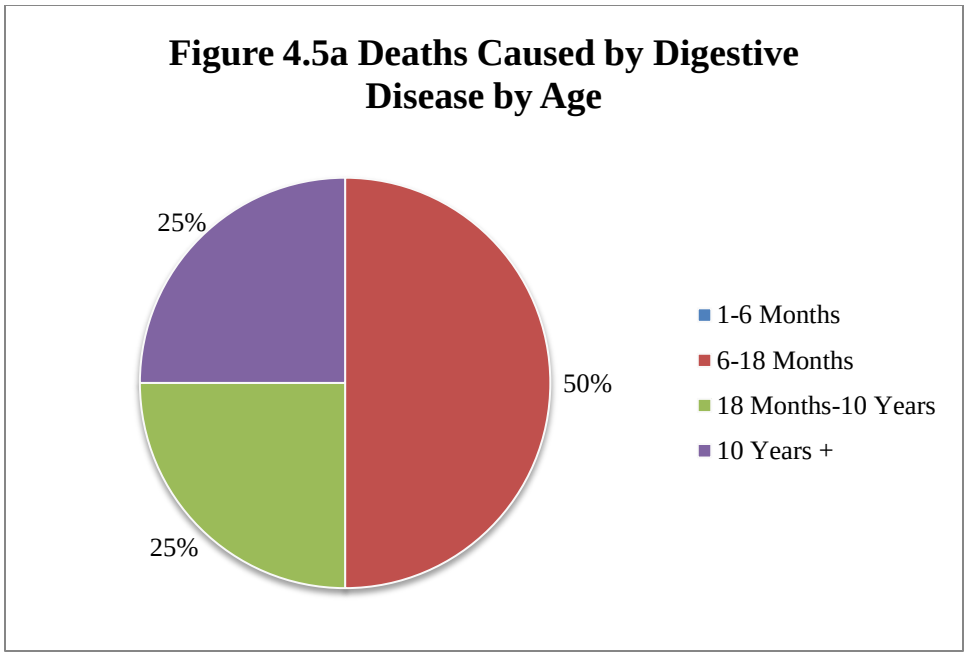
surgical intervention and a successful outcome requires prompt attention. Colic was responsible for 14 (14.4%) of the 97 deaths reported in 2010.

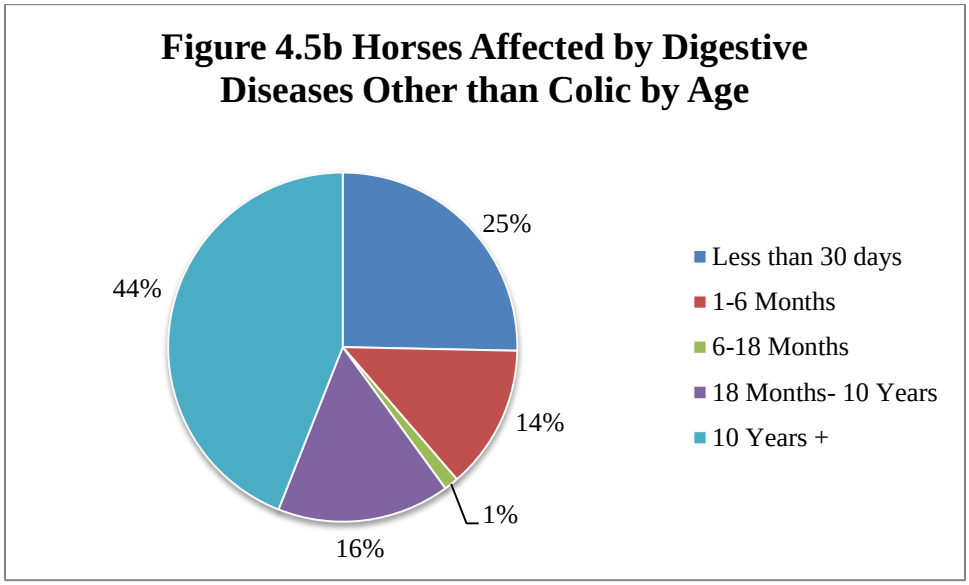




Deaths Caused and Horses Affected by Digestive Diseases Other than Colic

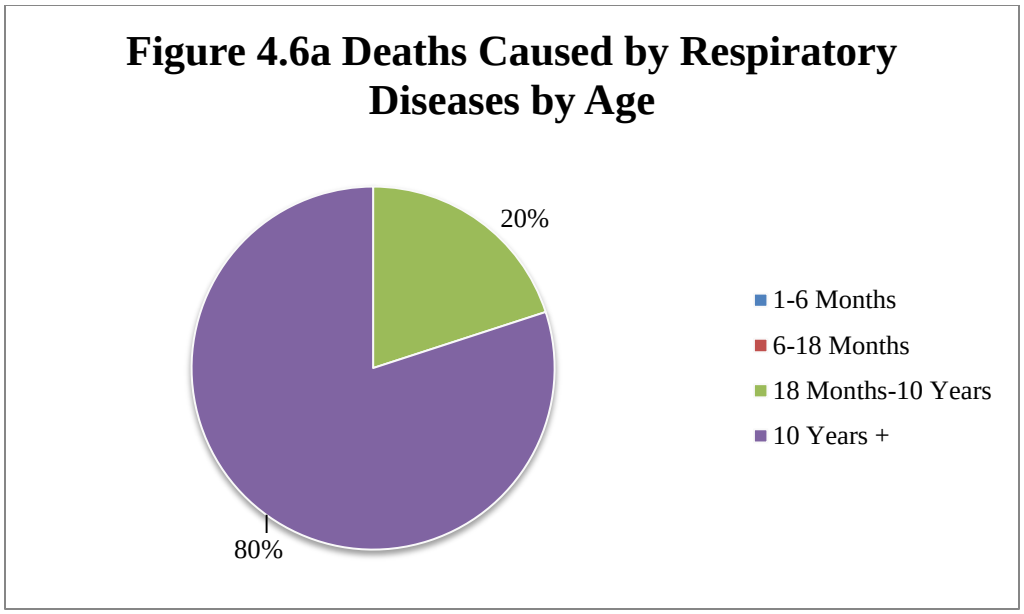
There are a multitude of problems that can affect the gastrointestinal tract in horses. A few of the most common besides colic are gastric ulcers, chronic weight loss and diarrhea. Gastric ulcers primarily affect foals and performance horses. Signs of gastric ulcers include weight loss, reduced or refusal to consume grain, poor hair coat and poor performance. The only way to confirm a diagnosis of gastric ulcers is through endoscopic examination. Chronic weight loss and diarrhea are two conditions that are often caused by another underlying condition. Digestive diseases other than colic were responsible for 4 of the 97 (4.1%) deaths reported in 2010.

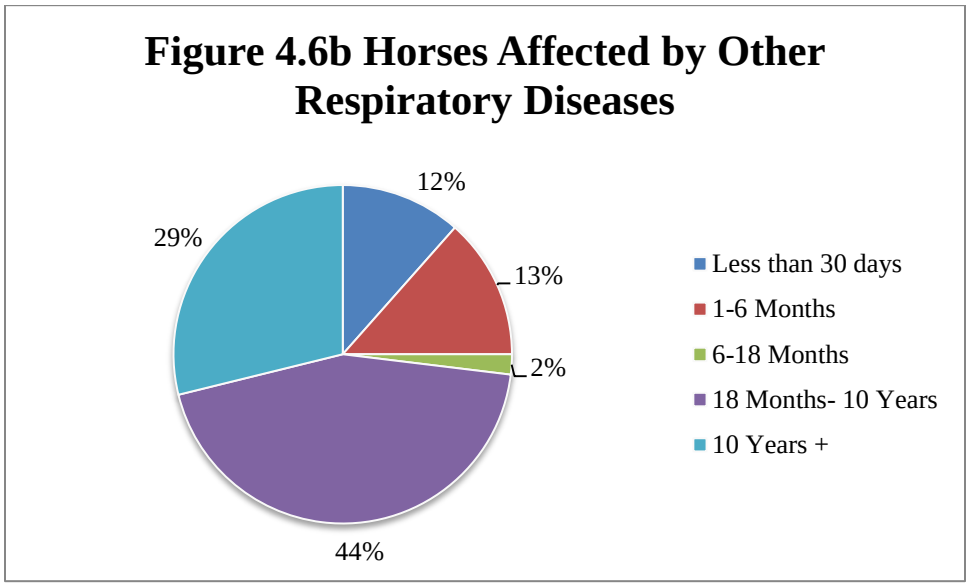




Deaths Caused by and Horses Afflicted with Respiratory Diseases

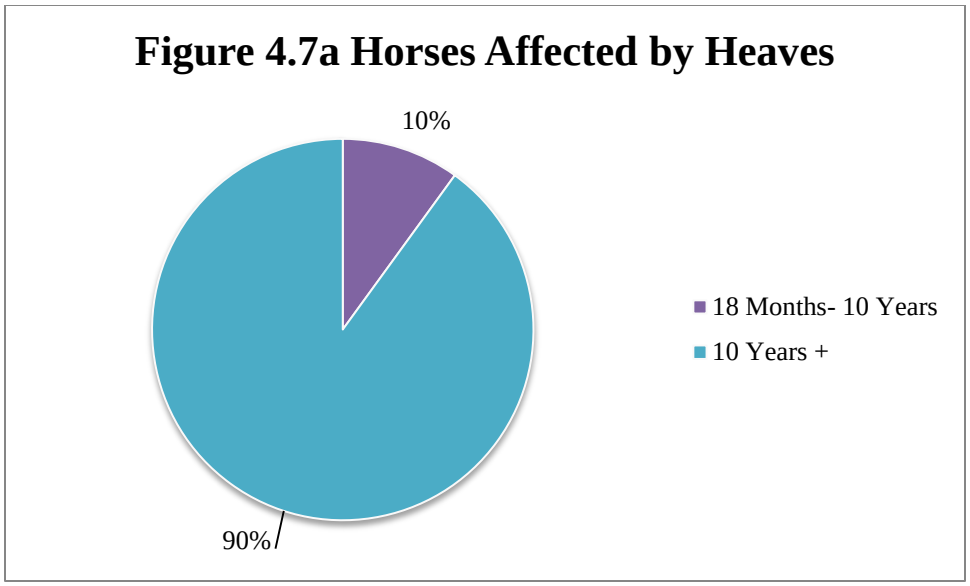
Respiratory diseases are the second most limiting condition affecting a horse's athletic performance. There are certain conditions that are related to environment (such as heaves) which can be recognized in a horse with chronic coughing and increased breathing efforts at rest. Other issues such as exercise-induced pulmonary hemorrhage (lung bleeding) are usually only detectable after exercise and some conditions are caused by bacterial infection (e.g. strangles). As a result, certain problems can be solved by simple changes in management while others may require extensive diagnostic testing and expensive treatments. Respiratory related deaths were responsible for 5 (5.2%) of the 97 equine deaths reported in 2010.

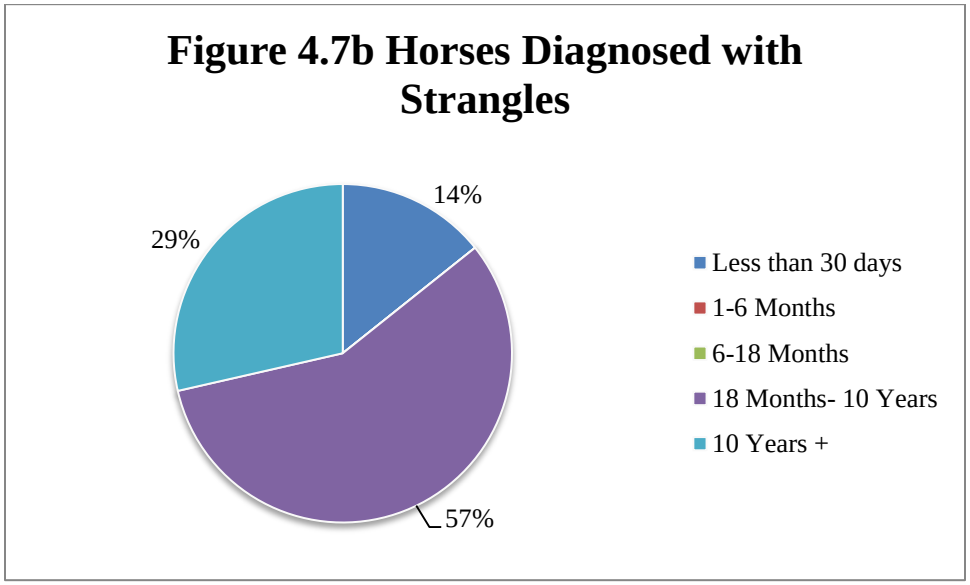




Horses Affected by Heaves or Strangles

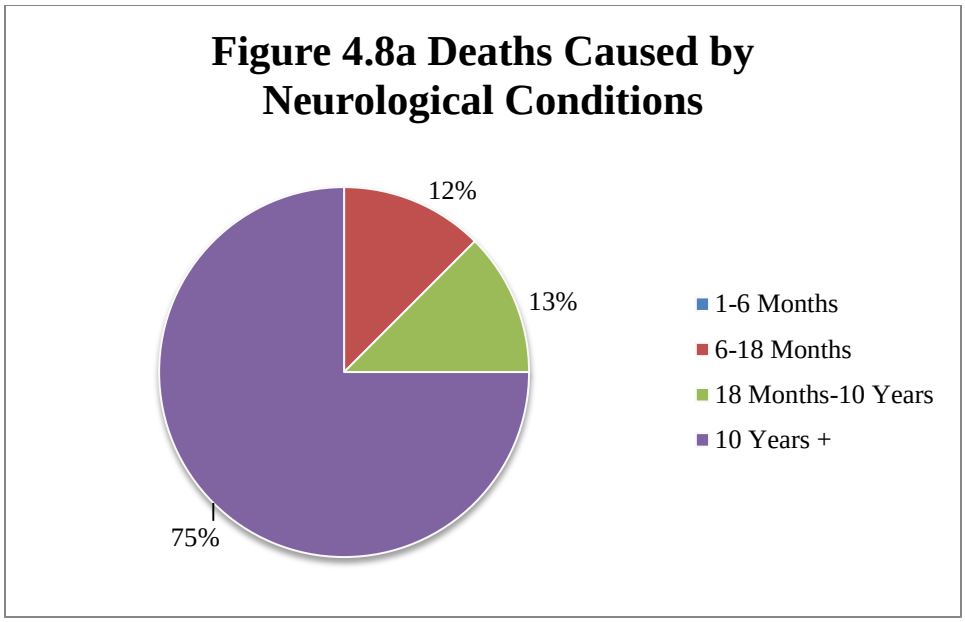
Out of the responses to the health portion of the study 20 horses were reported as suffering from heaves and 7 had been diagnosed with strangles.

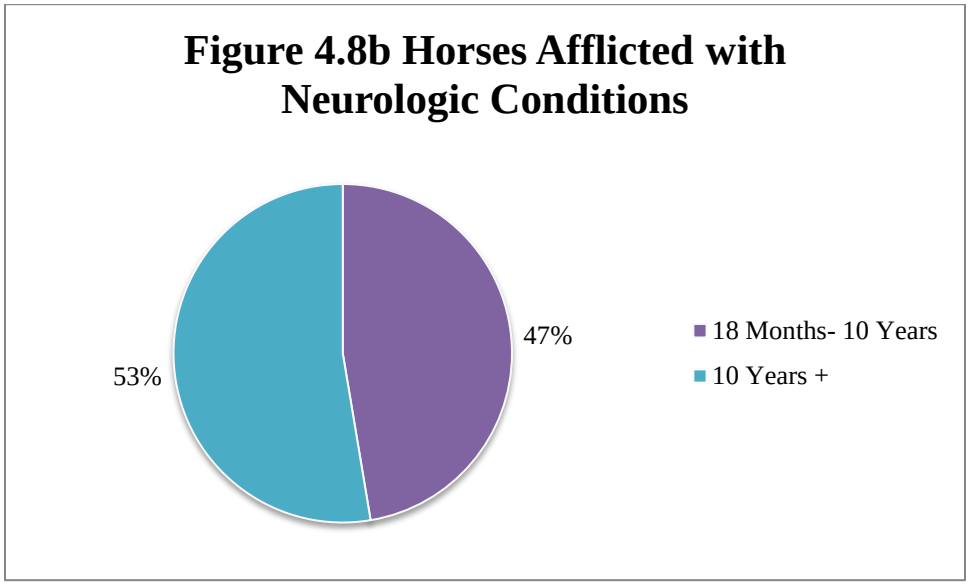




Deaths Caused by or Horses Affected with Neurological Conditions

Neurologic disease affects the nervous system which includes the brain, spinal cord and nerves located throughout the body. Diseases such as West Nile Virus and equine protozoal myeloencephalitis (EPM) have brought attention to neurological conditions in the past ten years. Other common neurological conditions include equine wobbler syndrome, rabies and equine herpesvirus-1 (EHV-1). Some of these are preventable by routine vaccination (e.g. EHV-1, West Nile). Typical signs include an abnormal mentation, gait (especially when turning in tight circles) and relaxed or decreased tail and anus function. Neurologic conditions were responsible for 8 of the 97 (8.2%) reported deaths in 2010.

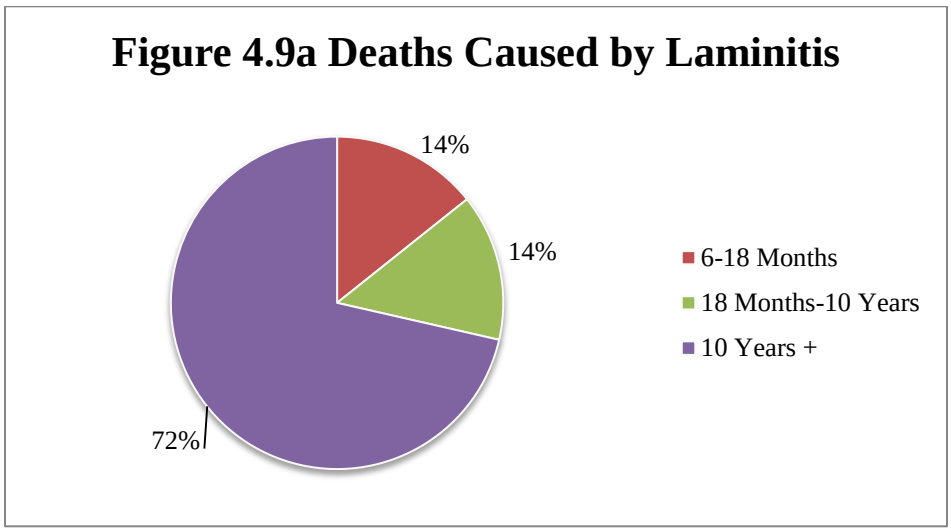


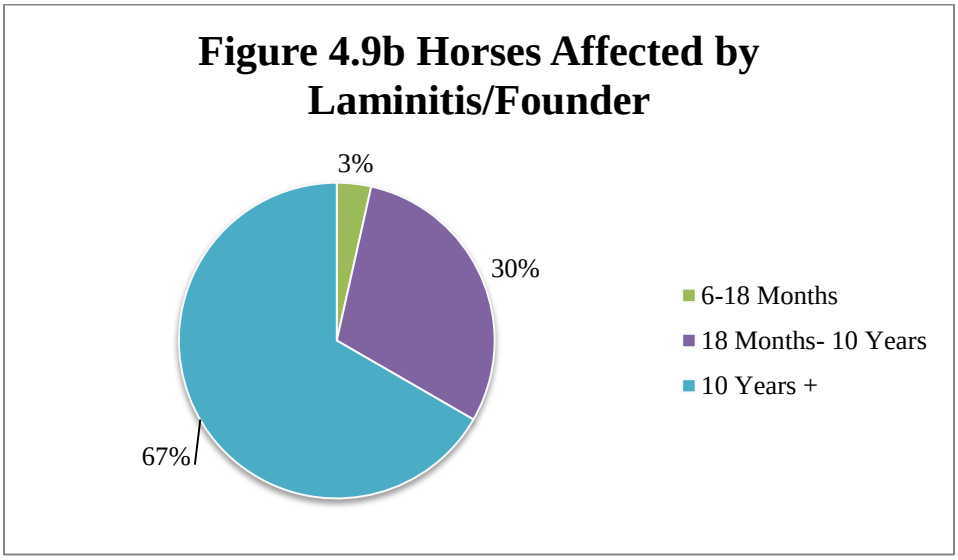


Deaths Caused by or Horses Affected with Laminitis/Founder

Laminitis or founder is a complex condition that occurs when the hoof laminae (attached to both the hoof wall and coffin bone) begin to degenerate. Although laminitis can affect all four feet, it is often more common in the front feet. The cause of laminitis can be one of numerous reasons including a carbohydrate overload from consuming too much grain or fresh, lush grass, colic, severe infection, a retained placenta (in mares) or hormone imbalances. Clinical signs of a horse exhibiting laminitis include a shortened stride, increased digital pulse strength, hooves that feel hot to the touch and changing the posture to shift more weight on the heels (front feet out in front and hind feet under the body). There are many different treatments depending on the severity of

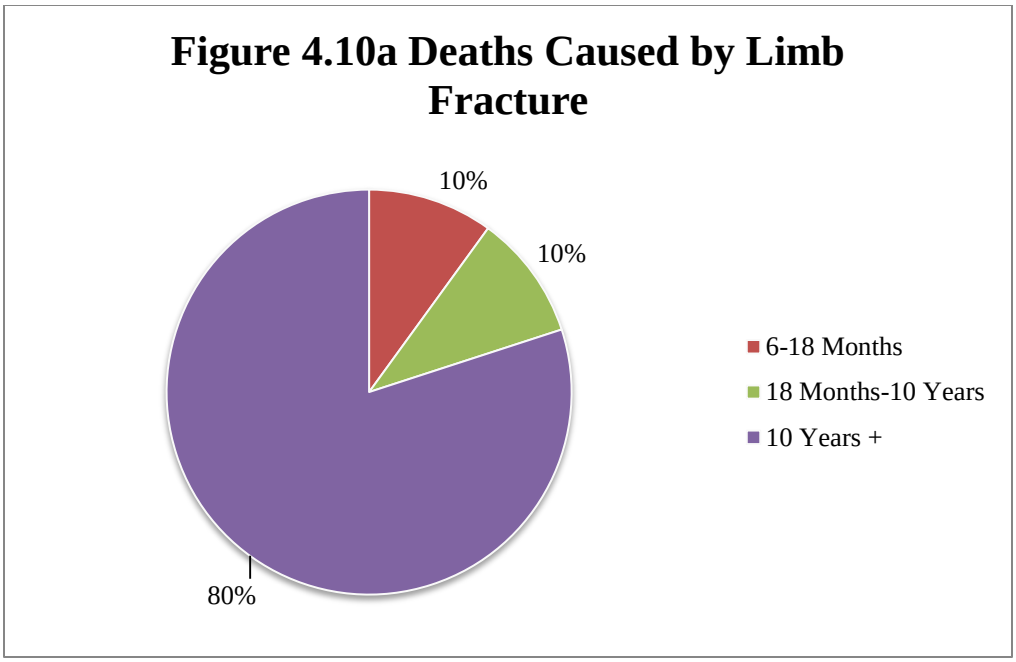
the laminitis ranging from medication and stall rest to specialized trimming and shoeing. Laminitis was responsible for 7 (7.2%) of the 97 deaths reported in 2010.

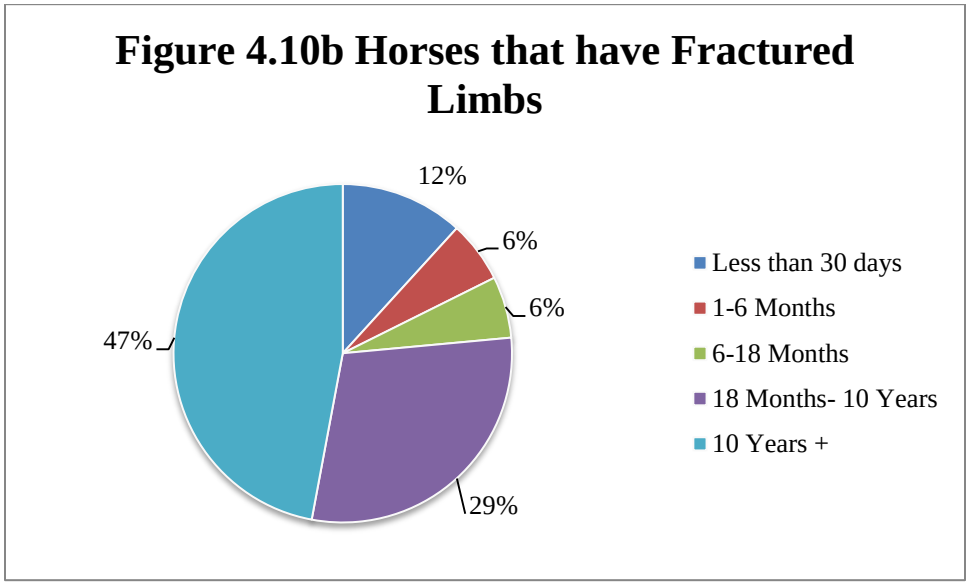




Deaths Caused by Limb Fracture & Horses that have Fractured Limbs

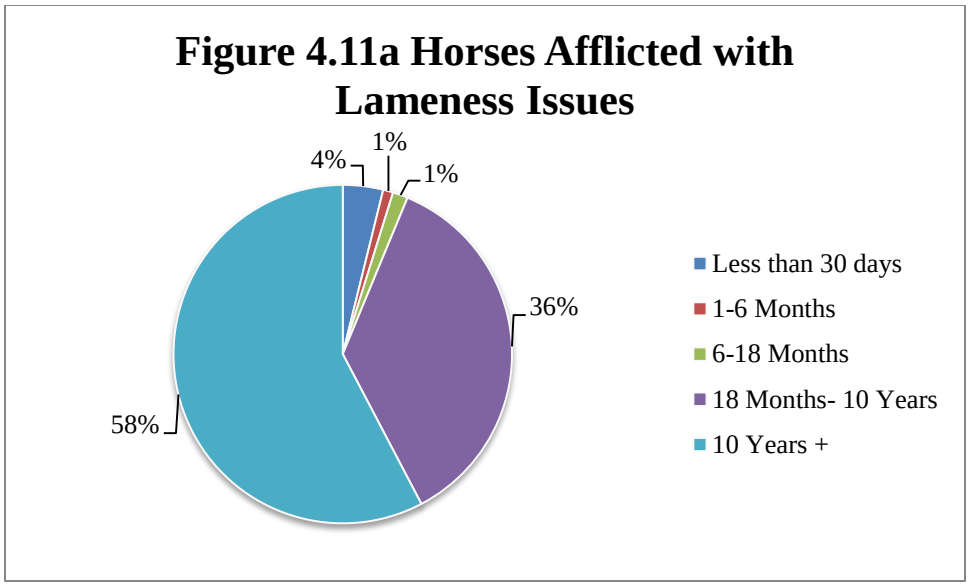
Fractures can be caused by any type of trauma or exercise although strenuous exercise is a more common cause. People often think that when a horse fractures a bone it is an automatic death sentence, but with the wonders of modern medicine fractures can often be fixed with surgery. Successful outcome depends on the location and severity of the fracture in addition to the proposed use for the horse post-surgery. Signs of a fracture include sudden lameness, swelling and pain. Limb fractures were responsible for 10 (10.3%) of the 97 recorded deaths in 2010.





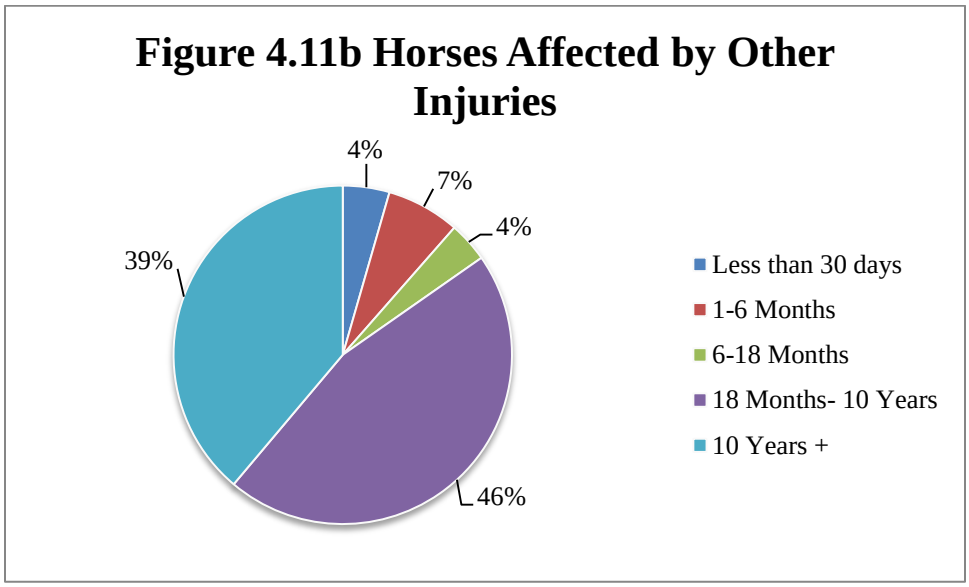
Horses Affected with Other Lameness Issues

Out of the responses to the health portion of this study 200 horses were reported as experiencing some sort of lameness other than laminitis or limb fracture during 2010.



Deaths Caused by and Horses Affected with Other Injuries

This category is for miscellaneous injuries such as wound or trauma that were not listed elsewhere on the survey. Miscellaneous injuries were responsible for 2 (2.1%) of the 97 deaths reported in 2010.



Deaths Caused by or Horses Affected with Leg/Hoof Problems

Again, this category is for leg or hoof problems other than laminitis/founder and fractures. Examples of other problems include navicular disease, tendon and ligament injuries and degenerative joint disease just to name a few. Leg or hoof problems were responsible for 6 (6.3%) of the 97 deaths reported in 2010.

Figure 4.12a Deaths Caused by Leg or Hoof Problems

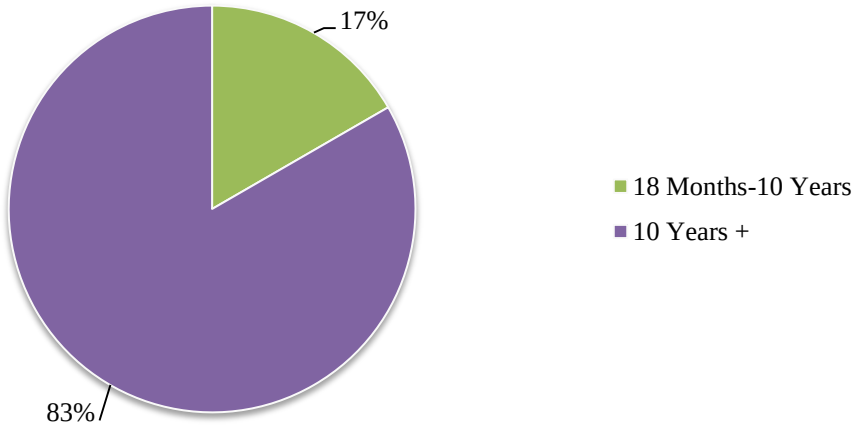
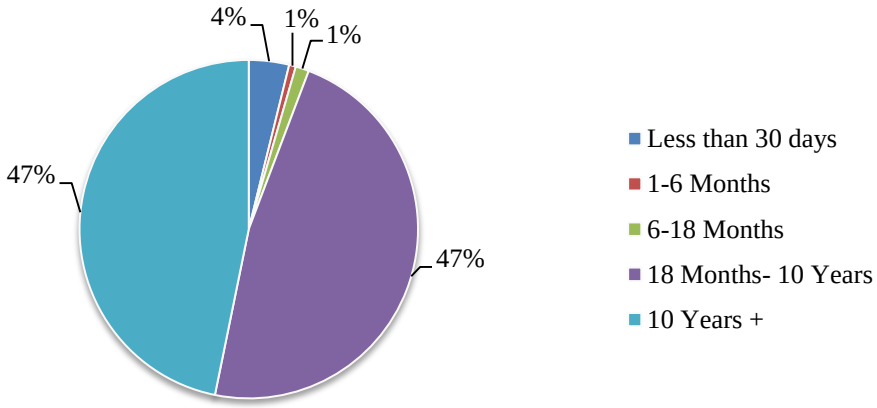


Figure 4.12b Horses Afflicted with Hoof Problems

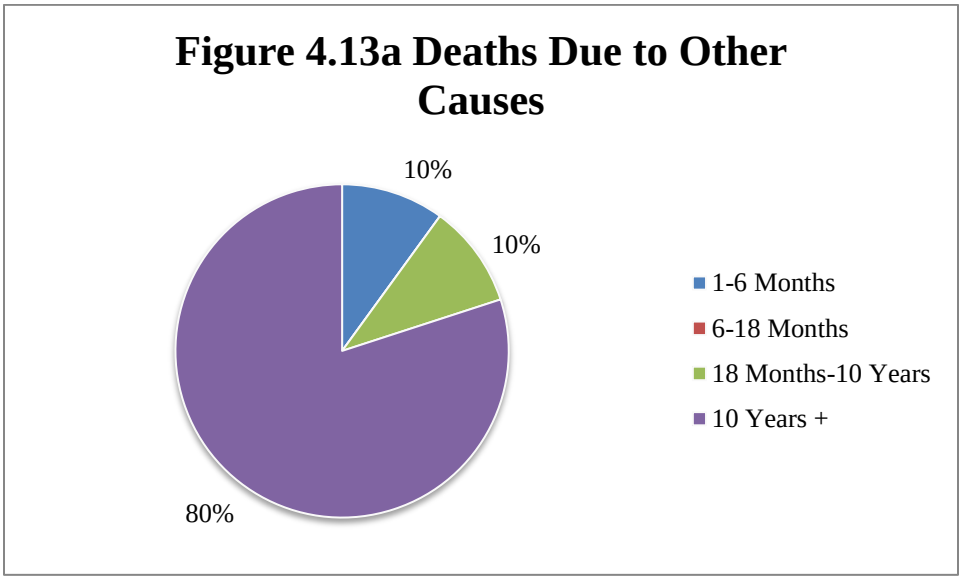


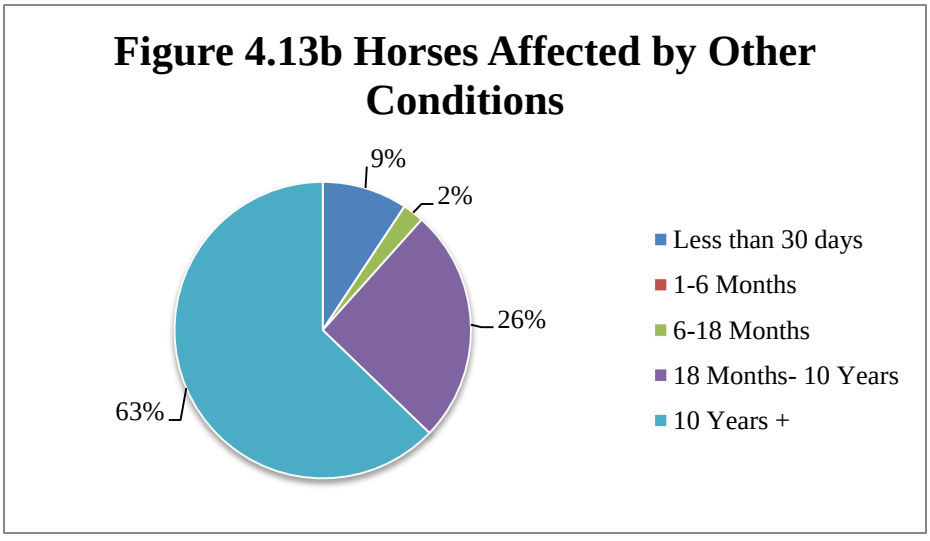
Deaths by Cause- Old Age

Horses that are in good health and well cared for can live well into their twenties and even thirties. Of course this is dependent on a multitude of factors. Old age was responsible for 25 (25.8%) of the 97 deaths reported in 2010.

Deaths Caused by or Horses Afflicted with Other Causes

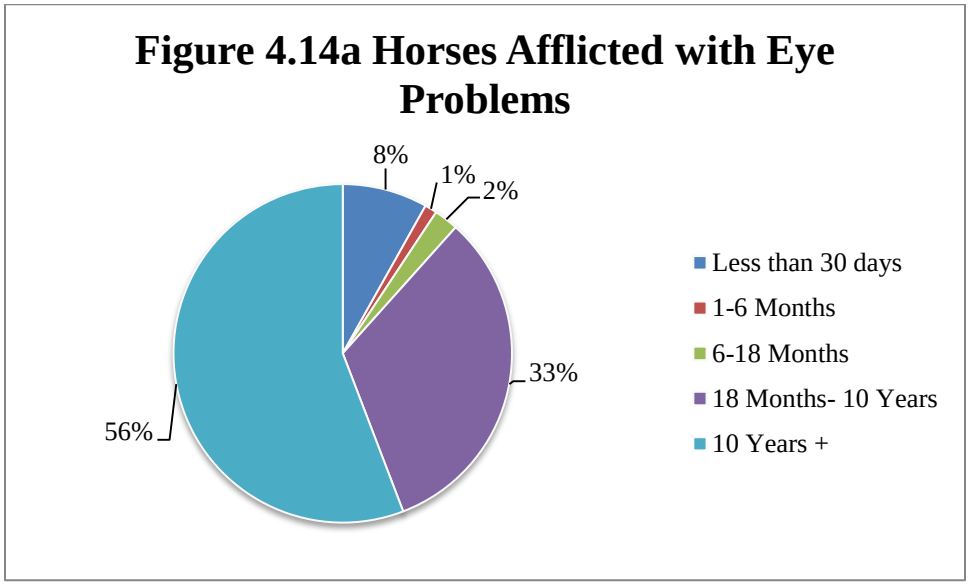
Other injuries and illnesses besides those listed were responsible for 10 (10.3%) of the 97 deaths reported in 2010.

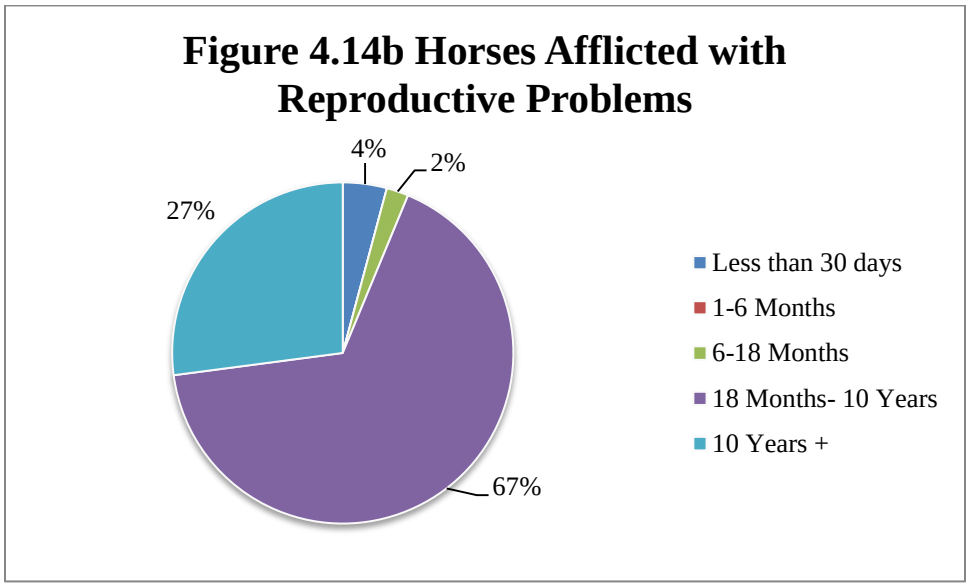




Horses Afflicted with Other Conditions

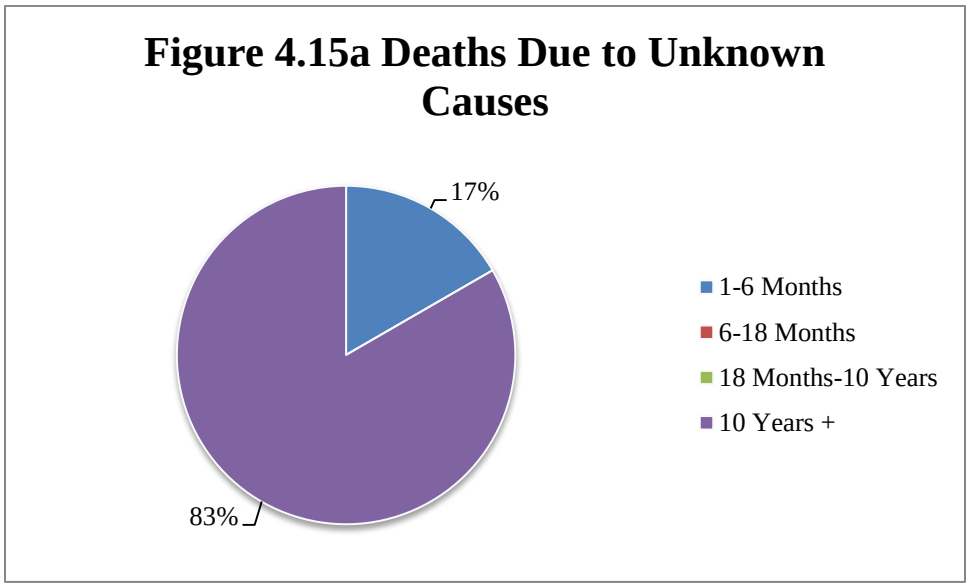
Of the responses to the health portion of the study 86 horses were affected with eye problems in 2010 and 48 horses faced some type of reproductive issue.

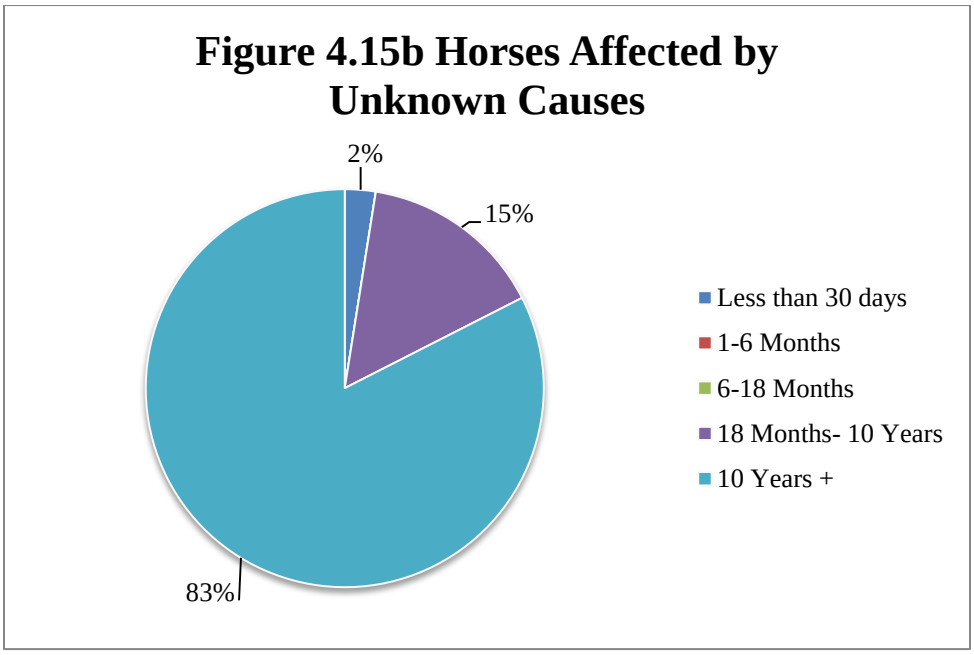




Deaths Caused by and Horses Affected with Unknown Causes

Deaths of unknown cause were responsible for 6 (6.3%) of the 97 deaths reported in 2010.





Summary Information Concerning Mortality and Morbidity by Age Group

Following is a description of the reported deaths in Indiana in 2010 categorized by age group along with the health afflictions faced by the individual age groups.

Table 4.6 Mortality Rates 1 to 6 Months of Age

Condition	Age 1-6 Months
Colic	50%
Other	25%
Unknown	25%
Total	100%

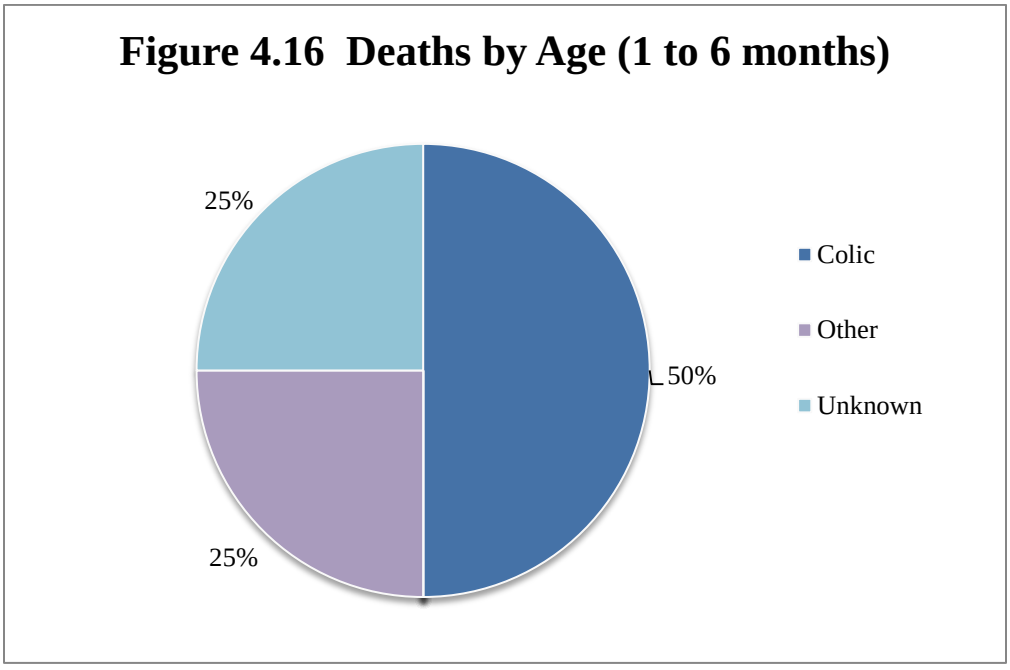


Table 4.7 Mortality Rates 6 to 18 Months of Age

Condition	Age 6- 18 Months
Digestive Disease	33%
Colic	17%
Neurologic	17%
Laminitis	17%
Limb Fracture	17%
Total	**100%**

Figure 4.17 Deaths by Age (6 to 18 months)

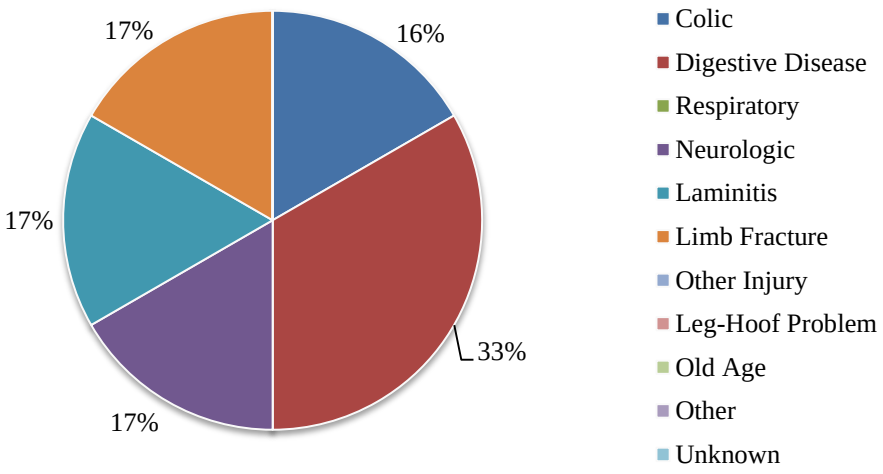


Table 4.8 Mortality Rates 18 Months to 10 Years

Condition	Age 6- 18 Months
Digestive Disease	33%
Colic	17%
Neurologic	17%
Laminitis	17%
Limb Fracture	17%
Total	**100%**

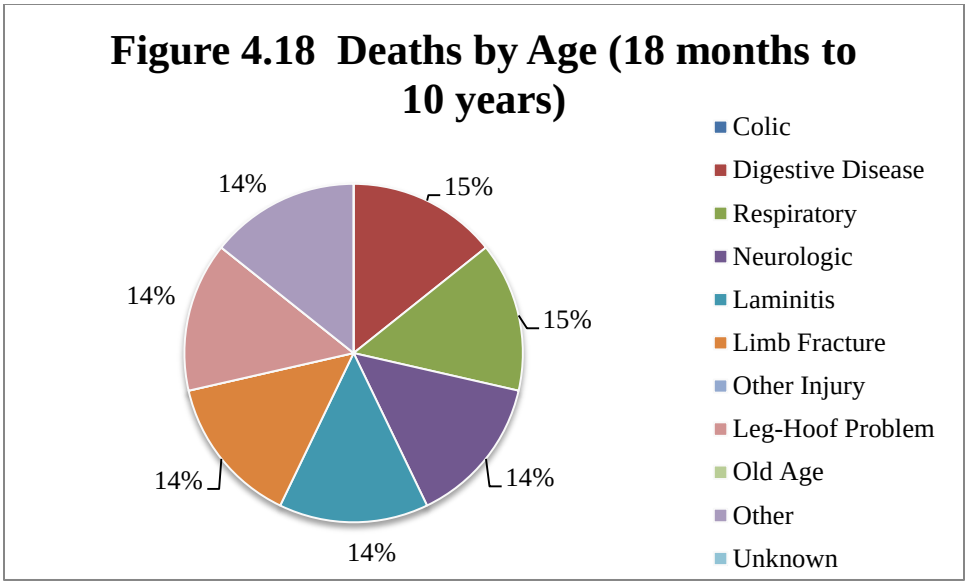


Table 4.9 Mortality Rates 10 Years +

Condition	Age 6- 18 Months
Digestive Disease	33%
Colic	17%
Neurologic	17%
Laminitis	17%
Limb Fracture	17%
Total	**100%**

Figure 4.19 Deaths by Age (10 Years +)

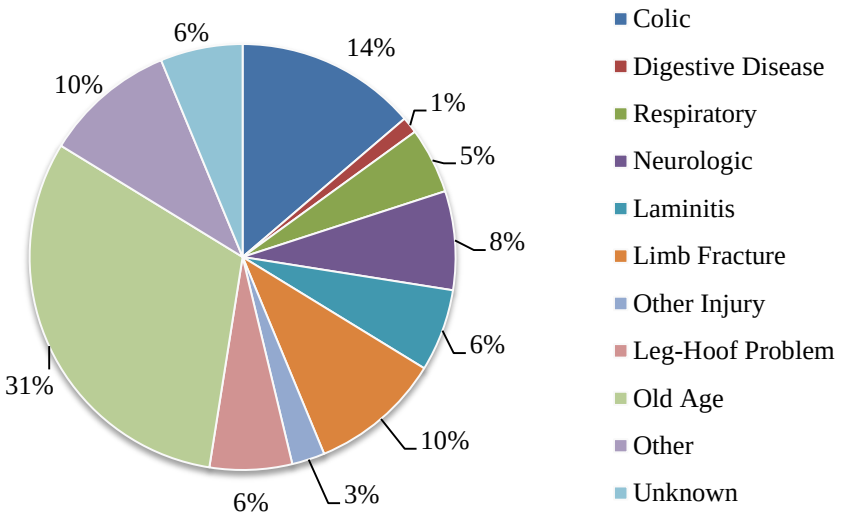


Table 4.10 Health Afflictions of Horses Less than 30 Days Old

Condition	Percentage of Horses Affected
Other Digestive	29.20%
Lameness	12.30%
Other Injury	10.80%
Eye Problems	10.80%
Respiratory	9.20%
Hoof Problems	9.20%
Other	6.20%
Colic	3.10%
Limb Fracture	3.10%
Reproductive Problems	3.10%
Strangles	1.50%
Unknown	1.50%
Heaves	0.00%
Neurologic	0.00%
Laminitis	0.00%
Total	**100.0%**

Figure 4.20 Health Afflictions of Horses Less than 30 days

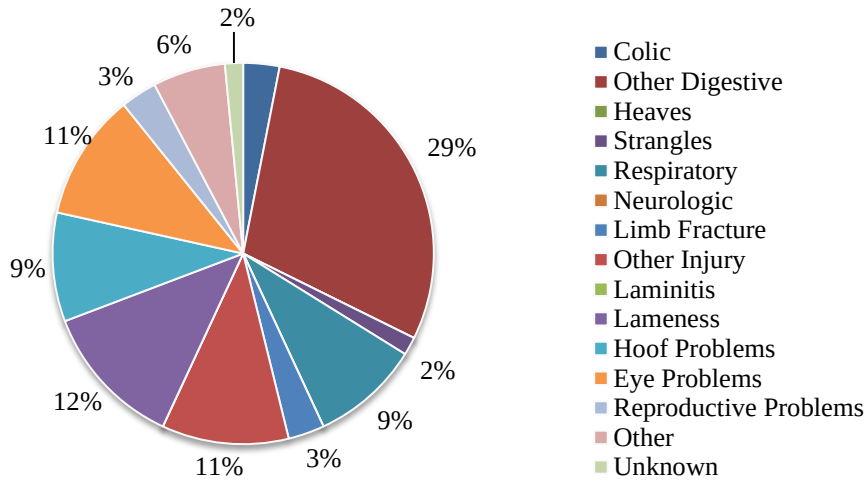


Table 4.11 Health Afflictions of Horses 1 to 6 Months Old

Condition	Percentage of Horses Affected
Other Injury	33.30%
Other Digestive	30.30%
Respiratory	21.20%
Lameness	6.10%
Limb Fracture	3.00%
Hoof Problems	3.00%
Eye Problems	3.00%
Colic	0.00%
Heaves	0.00%
Strangles	0.00%
Neurologic	0.00%
Laminitis	0.00%
Reproductive Problems	0.00%
Other	0.00%
Unknown	0.00%
Total	**100.0%**

Figure 4.21 Health Afflictions of Horses 1 to 6 Months of Age

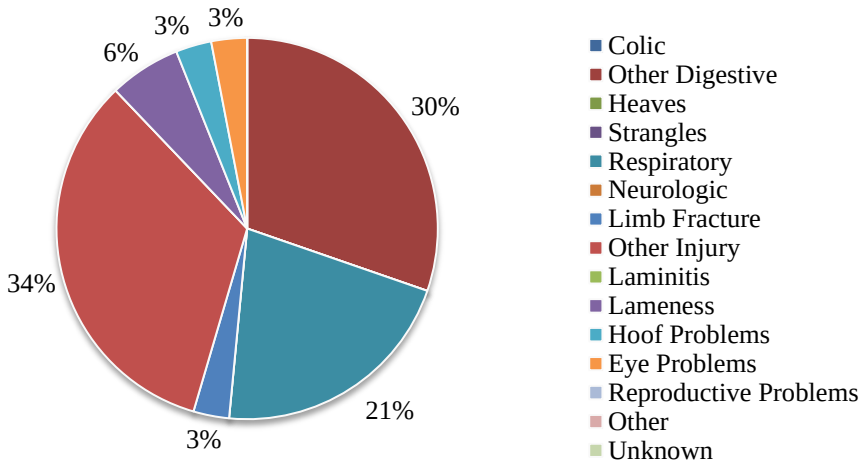


Table 4.12 Health Afflictions of Horses 6 to 18 Months Old

Condition	Percentage of Horses Affected
Other Injury	33.30%
Other Digestive	30.30%
Respiratory	21.20%
Lameness	6.10%
Limb Fracture	3.00%
Hoof Problems	3.00%
Eye Problems	3.00%
Colic	0.00%
Heaves	0.00%
Strangles	0.00%
Neurologic	0.00%
Laminitis	0.00%
Reproductive Problems	0.00%
Other	0.00%
Unknown	0.00%
Total	**100.0%**

Figure 4.22 Health Afflictions of Horses 6 to 18 Months of Age

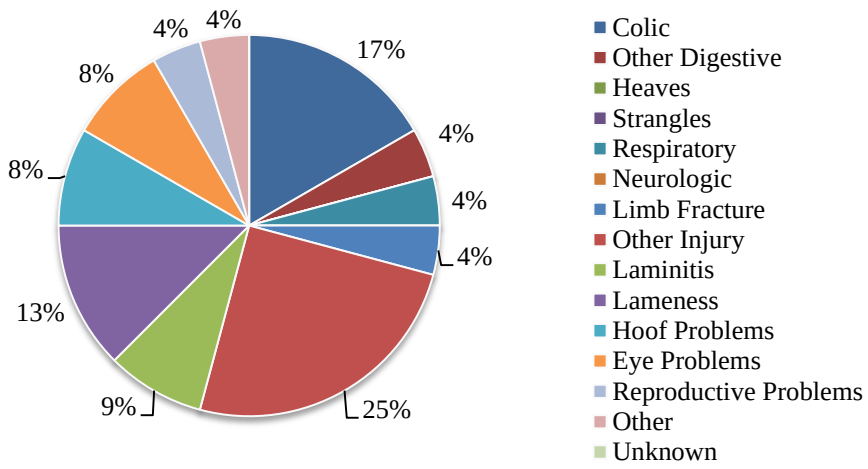


Table 4.13 Health Afflictions of Horses 18 Months to 10 Years

Condition	Percentage of Horses Affected
Other Injury	33.30%
Other Digestive	30.30%
Respiratory	21.20%
Lameness	6.10%
Limb Fracture	3.00%
Hoof Problems	3.00%
Eye Problems	3.00%
Colic	0.00%
Heaves	0.00%
Strangles	0.00%
Neurologic	0.00%
Laminitis	0.00%
Reproductive Problems	0.0%
Other	0.0%
Unknown	0.0%
Total	**100.0%**

Figure 4.23 Health Afflictions of Horses 18 Months to 10 Years of Age

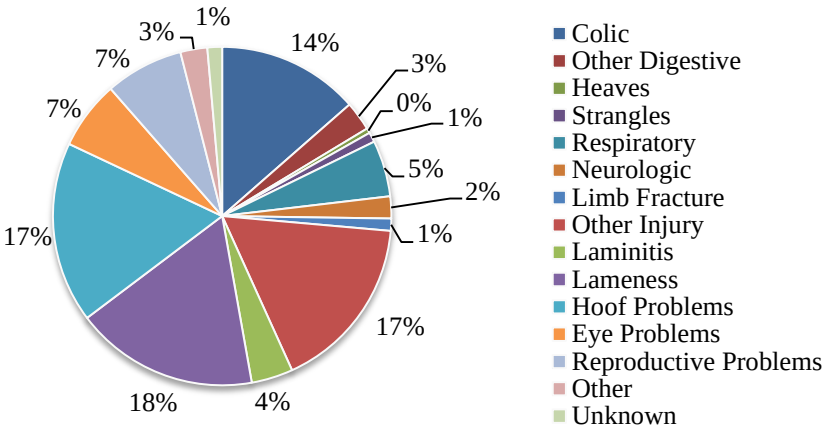
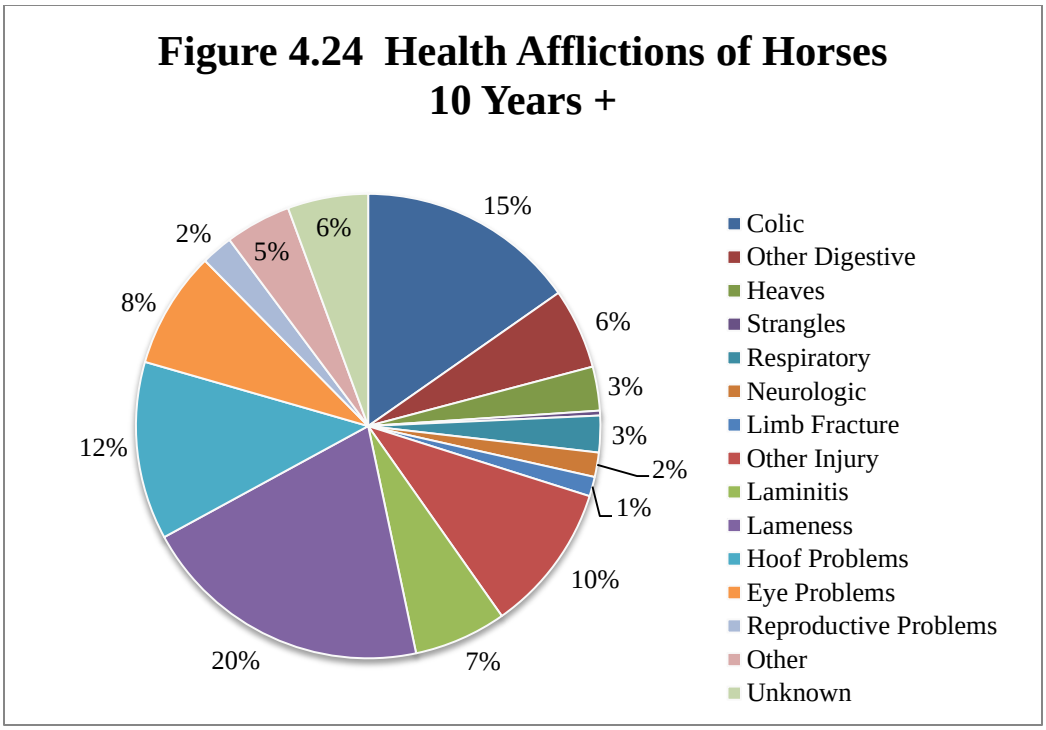


Table 4.14 Health Afflictions of Horses 10 Years and Older

Condition	Percentage of Horses Affected
Lameness	20.40%
Colic	15.30%
Hoof Problems	12.40%
Other Injury	10.40%
Eye Problems	8.10%
Laminitis	6.50%
Other Digestive	5.60%
Unknown	5.60%
Other	4.60%
Heaves	3.10%
Respiratory	2.50%
Reproductive Problems	2.20%
Neurologic	1.70%
Limb Fracture	1.40%
Strangles	0.30%
Total	**100.00%**



When asked to estimate the total cost to remedy the affliction along with an estimate of the cost of loss of use. This estimate from the survey totaled $803,959.50 for the reported 317 cases for a median cost of $500 per case. The cost estimates range for $20 to $70,000.

Projected to a population of 160,000 horses, the estimated annual cost is $80,000,000 for the loss of use and costs incurred treating these afflictions.

Table 4.15 Economic Impact From the Loss of Use and Treatment Costs of Afflicted Horses

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	**5.2**	**4.6**	**9.8**
Labor Income	**$164,377**	**$197,675**	**$362,052**
Contribution to State GDP	**$11,675,000**	**$615,870**	**$12,290,870**

Table 4.16 Direct and Indirect Tax Impact From the Loss of Use and Treatment Costs of Afflicted Horses

State and Local Tax Impact	
Employee Compensation Taxes	$ 466
Indirect Business Tax	$ 144,252
Taxes on Households	$ 9,438
Taxes on Corporations	$ 10,124
Total State and Local Taxes	**$ 164,280**
Federal Tax Impact	
Employee Compensation Taxes	$ 39,345
Proprietor Income Tax	$ 3,588
Indirect Business Tax	$ 18,033
Taxes on Households	$ 21,603
Taxes on Corporations	$ 19,126
Total Federal Taxes	**$ 101,695**
State and Local Tax Impact	
Employee Compensation Taxes	$ 466
Indirect Business Tax	$ 144,252
Taxes on Households	$ 9,438
Taxes on Corporations	$ 10,124
Total State and Local Taxes	**$ 164,280**
Federal Tax Impact	
Employee Compensation Taxes	$ 39,345
Proprietor Income Tax	$ 3,588
Indirect Business Tax	$ 18,033
Taxes on Households	$ 21,603
Taxes on Corporations	$ 19,126
Total Federal Taxes	**$ 101,695**

Section V Conclusions and Recommendations

Conclusions

This study has provided the first insights into the complex equine industry. The complexity results from the many alternative purposes and types of equine that populate the industry as well as the complex collection of services, specialties, and functions for equine in the industry.

- The equine population is diverse in terms of breeds, purposes for owning and raising horses, location, and support services. The horses and their functions fall into broad categories, dominated by (1) recreational use, (2) competitive use, and (3) work. The support services range from a variety of// materials necessary to raise horses, much of which was not captures in this first survey ranging from land use, boarding facilities, bedding, to feed. Maintenance and development of horses requires a complex network of services and skills from veterinary services, to training, conditioning, grooming, farriers, and riding skills. The industry also requires a wide range of materials such as saddles, bridals, liniments, hygiene, medication and other supplies. This study provided a broad net to capture only some of these elements. The diversity and complexity is one of the findings.
- The economic implications of the equine industry on the State economy are significant. Based on the results of this study and the estimates of the number of equine and the number of enterprises, the economic implications for the state of Indiana are estimated and summarized in Table 5.1 and Table 5.2.

  Although the impact of specific sectors has been detailed in this report, care is taken not to double count economic factors. What is a revenue in one sector is an expense in another. The total impact on the Indiana economy is estimated from the results summarized in this report.

Table 5.1 Economic Impact of the Total Equine Industry 2010

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	**9,841**	**5,470**	**15,311**
Labor Income	**$ 205,366,926**	**$216,578,619**	**$ 392,124,589**
Contribution to State GDP	**$1,419,107,201**	**$674,923,775**	**$2,094,030,976**

Table 5.2 Tax Revenue Impact of the Equine Industry 2010

State and Local Tax Impact	
Employee Compensation Taxes	$ 456,162
Proprietor Income Tax	
Indirect Business Tax	$141,182,983
Taxes on Households	$ 9,651,750
Taxes on Corporations	$ 12,561,247
Total State and Local Taxes	**$163,852,142**
Federal Tax Impact	
Employee Compensation Taxes	$ 39,912,350
Proprietor Income Tax	$ 3,284,768
Indirect Business Tax	$ 17,771,902
Taxes on Households	$ 22,119,706
Taxes on Corporations	$ 24,803,013
Total Federal Taxes	**$107,891,739**

These conclusions depend upon an assumption that the horse population is 160,000 in the 2002 census report. The 2005 study by the American Horse Council estimates the Indiana horse population at 202,986 which is 27% larger. If this figure were utilized, the estimates of the economic impact would increase as illustrated in Table 5.3.

Table 5.3 Economic Impact of the Total Equine Industry 2010
Assuming a Horse Population of 202,986.

	Direct Effect	**Indirect and Induced Effect**	**Total Effect**
Employment	**12,498**	**6,947**	**19,445**
Labor Income	**$ 260,815,996**	**$275,054,846**	**$ 497,998,228**
Contribution to State GDP	**$1,802,266,145**	**$857,153,194**	**$2,659,419,340**

Similarly, if it were assumed that the horse population is less than 160,000, such as 117,000 which is 27% less than the current estimate, the economic impact of the equine industry would be less as indicated in Table 5.4.

Table 5.4 Economic Impact of the Total Equine Industry 2010 Assuming a Horse Population of 117,000.

	Direct Effect	Indirect and Induced Effect	Total Effect
Employment	**7,184**	**3,993**	**11,177**
Labor Income	**$ 149,917,856**	**$ 158,102,392**	**$ 286,250,948**
Contribution to State GDP	**$1,035,948,257**	**$492,694,356**	**$1,528,642,613**

Distributed on a regional basis based on the relative horse population of each region and attributing horse racing economic impacts to the local region provides the following impact conclusions. Figures are reported in thousands of dollars.

Table 5.3 Economic Impact of the Equine Industry by Labor Planning Region 2010

	Total Employment	Total Labor Income	Total Contribution
1	**1133**	**$ 15,789**	**$111,862**
2	**1732**	**$ 24,134**	**$172,520**
3	**3383**	**$ 47,148**	**$337,026**
4	**1309**	**$ 18,249**	**$130,447**
5	**4650**	**$110,024**	**$623,353**
6	**1525**	**$ 21,254**	**$151,929**
7	**849**	**$ 11,834**	**$ 84,591**
8	**1743**	**$ 24,290**	**$173,633**
9	**1522**	**$ 21,207**	**$151,595**
10	**1048**	**$ 14,605**	**$104,402**
11	**973**	**$ 13,562**	**$ 96,945**

Indiana Planning Regions -Source Indiana Department of Labor

On a relative basis, the economic impact from each of the industry segments studied is described in Table 5.4. As may be expected, the Race Horse Breeders and the Race Tracks are dominant factors in the industry.

Table 5.4 Proportional Economic Impact From Industry Sectors

IMPACT	Horse Shows	Equine Health	Equine Owners	Equine Businesses	Race Horse Breeders	Horse Racing
Employment (jobs)	12	19	3,834	2,269	5,899	3,278
Labor Income	$328,798	$707,836	$139,233,710	$82,375,668	$80,260,162	$119,039,373
Contribution to State GDP	$2,211,672	$3,140,931	$617,831,550	$365,531,353	$577,093,673	$528,221,791
State & Local Taxes	$92,007	$289,842	$57,012,844	$33,730,848	$23,982,850	$48,743,750
Federal Taxes	$93,355	$173,218	$34,072,472	$20,158,499	$24,263,565	$29,130,630

Using the IMPLAN model, the projected direct and indirect tax revenue consequences from the economic activity generated by the equine industry is significant. State and local tax revenues attributed to the equine industry exceed $160 Million while federal tax revenues attributed to the equine industry are approximately $107 Million. The resulting tax impact exceeds $270 Million. This is based only on the sectors captured in the study.

- It appears that the equine industry is changing from an industry focused on work and recreation to an industry that more prominently engages in recreation and competition. There is some evidence that some segments of the industry, namely racing, breeding, and also boarding and training have significant export potential, providing facilities and services to those outside of the State, generating business activity and revenues in the State.
- Modern communications, media and the internet play a significant role in the modern Equine industry. Many operations do not perceive that they are businesses and are likely small scale operations, but collectively, the small equine operations contribute significantly to the tapestry of the Indiana economy.

Dissemination of the Findings

The purpose of this research was to gather information that would better inform the equine industry, policy makers, and the general public of the economic role of this industry in Indiana.

The completed report is available November 1, 2011 and includes the technical report. The plan for disseminating the information has three components: report to sponsors, report to equine organizations and report to general public. The report will be posted on the Purdue University and Purdue University Calumet websites. The agricultural extension website will have fact sheets on various components of the research.

All sponsors of the Indiana Economic Impact and Health Study will be sent a hard copy and electronic copy of the report with a letter indicating that a presentation of the results at their business meeting can be arranged at their request. Sponsors are encouraged to post a copy of the report on their website.

The various Indiana equine organizations will be sent a hardcopy and an electronic copy of the report and encouraged to post the electronic copy on their website. They are encouraged to inform their members of the three public meetings discussing the research. If requested, one of the researchers will speak to their group at a business meeting.

There will be three public meetings scheduled to discuss the results of the survey. One meeting located in the northern portion of the state, one in the central portion of the state and one in the southern portion of the state to reach the greatest number of people in the equine industry. Information on the dates and locations of the meetings will be posted and at least two of the researchers will be available to present the findings and answer questions at each meeting.

There is a lack of business related data for the Indiana equine industry. This report is intended to provide this industry with summary data to better assist them in understanding the industry status and their economic role in the state economy. The report will be sent electronically to anyone who requests a copy and disseminated as widely as possible in the state.

A copy of this report and the technical report can be obtained by contacting Dr. Conners at conners@purduecal.edu.

Recommendations

- There is a need for a long range research plan to provide information on horse populations and equine enterprises. A census of equine every ten years, followed by data collection and studies of significant market segments - racing, breeding, competition, recreation and shows – on regular time tables.
- There is a need to develop a comprehensive data base to identify all the participants in the industry. This includes not only the more familiar segments of the equine industry, but also the many suppliers and service providers that have not viewed themselves as industry participants. The database created with this research is a starting point.
- There is a need for further education of those in the equine industry, to recognize their economic role, to help them operate their enterprises more like businesses, and for policy makers to be better informed about the industry.
- Recommend funding be allocated for further research.