

Agricultural and Food Policy Center
Texas A&M University

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Economic Impact of U.S. Deer Breeding and Hunting Operations



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Department of Agricultural Economics
Texas AgriLife Research
Texas AgriLife Extension Service
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AGRI LIFE
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College Station, Texas 77843-2124
Telephone: (979) 845-5913
Fax: (979) 845-3140
<http://www.afpc.tamu.edu>

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Research Report 17-4

Agricultural and Food Policy Center
Department of Agricultural Economics
2124 TAMU
College Station, TX 77843-2124
Web site: www.afpc.tamu.edu

Economic Impact of U.S. Deer Breeding and Hunting Operations

David P. Anderson
Joe L. Outlaw
Margaret L. Earle
James W. Richardson



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The Texas A&M University System**

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Executive Summary

- This report is an update to the initial study completed for the North American Deer Farmers Association in 2007 that reported impacts as of 2005. The present study utilizes a survey which was performed in mid-2016 and asked for information describing the operations in 2015.
- The survey asked detailed questions regarding inventory, size of operation, annual expenditures, revenue sources, and production system. The survey asked additional questions regarding CWD testing in the area of veterinary & animal supplies.
- Breeding operations reported annual expenditures averaging \$270,431 per year.
- The deer breeding industry has a direct economic impact of \$918.5 million annually.
- When incorporating the indirect impacts of the industry, for example, the farm's expenditures on feed, veterinary supplies, fuel and other purchases, the total economic impact of the industry to the economy is \$2.6 billion.
- Many of these breeding operations also have hunting or sell stocker bucks to other hunting operations. The study estimated the impact of hunting dollars spent on the products of deer breeders (with hunters as buyers of the deer breeders' products) and determined an additional \$935 million is generated by the deer breeding industry.
- The total impact of the industry to the nation's economy, combining the breeding and hunting components, is \$7.9 billion annually.
- The economic activity of the deer breeding industry supports 56,320 jobs, most of which are in rural areas. If this industry did not exist, those jobs would have to be supported by some other economic activity.
- These results continue to highlight the fact that the deer breeding industry is a growing and important segment of the nation's rural economy, contributing to the vitality of rural areas in the United States.

Introduction

While deer farming has been a well-established industry for nearly a century, over the past 10 years there has been a spike in interest concerning the demand and supply of this nontraditional agricultural sector. The production side of the industry is represented by operations involved in breeding and raising deer. Other industry breeders and hunting operations and, ultimately, hunters represent the consumption side. This developing industry has become an important contribution to the economic growth and stability of many rural communities across the country.

Breeding operations involve the scientific breeding and raising of deer with the intention of selling to other breeding operations or hunting facilities. Hunting operations purchase deer to stock their operations. A 2007 study on the economic impact of U.S. cervid farming found that breeding operations contributed a total economic impact of almost \$900 million annually with an additional \$241 million generated by hunting operations for a combined impact on the U.S. economy of \$1.1 billion annually.¹

As the industry continues to grow, understanding its economic impact becomes increasingly relevant. Lawmakers have grown interested in industry regulations, legalizations, and restrictions, as well as aid in conservation efforts by preserving space for wildlife.

Methodology

To estimate the economic impact of the deer breeding industry, a survey instrument was developed to collect detailed operational information from industry participants. This information was then combined with the inventory of deer breeding operations to analyze the production side of the industry. In addition, an analysis was performed to determine the impact of hunting operations that are related to the deer breeding industry. These two components were then combined to perform the economic impact analysis of the U.S. deer breeding industry.

Data Collection

The survey instrument used in the 2007 study was reviewed by industry leadership, revised, and sent to over 2,100 members of the North American Deer Farmers Association (NADeFA) throughout the late spring and summer of 2016. Overall, the extensive survey achieved a low response rate with only 97 completed surveys. Of these, 59 were breeding only operations, 35 were breeding and hunting, and only 3 were self-described hunting only operations. Of these, 2 operations reported being involved in scent collection, with 20 involving cervids other than whitetails. Due to confidentiality and data disclosure policies, the data for hunting only operations cannot be provided in this report. There are likely a number of reasons for the low response rate. First, the survey instrument was very detailed and required both production and accounting knowledge to complete. Secondly, there are NADeFA members who are associated with the industry (such as feed and equipment suppliers) but do not have breeding facilities or hunting operations and did not return the survey.

The full survey is provided in the Appendix. For the purpose of the survey, the deer breeding industry was segmented into three operational structures: breeding only, breeding and hunting, and hunting only operations. Breeding only operations were defined as those that only involve the scientific breeding and rearing of deer. Hunting only operations relate to only those hunting operations that purchase deer from breeding operations as stockers or as breeding stock for release into the hunting facility. Operations that manage their deer populations by selective harvest and nutritional supplements, rather than supplementing the natural genetics with deer released from breeding operations, are not included in this study. Breeding and hunting operations represent those that engage in breeding activities while also utilizing their own breeding stock, or purchased breeding stock, to supplement the genetics and/or populate their hunting operation.

¹ Anderson, David P., Brian J. Frosch, and Joe L. Outlaw, "Economic Impact of the United States Cervid Farming Industry," AFPC Research Report 97-4, College Station, TX: Texas A&M University, Agricultural and Food Policy Center, August 2007.

Table 1: The Herd Structure of Deer Breeding Operations.

	Breeding	Breeding and Hunting
Operation		
Year the Operation Started	2004	2004
Area of Breeding Operation (acres)	23	30
Area of Hunting Operation (acres)	N/A	1,508
Number of Pens	9	15
Area of Pens (acres)	16	21
Herd Inventory		
Total Number of Breeder Deer	83	163
Breeder Bucks (number)	34	61
Stocker Bucks (number)	28	46
Does (number)	39	76
Fawns (number)	33	59
Mortality Rate (percent)	12.5%	5.5%

The surveys proved to be quite extensive in order to capture an accurate picture of the industry and its impact. For breeding operations, the survey included questions regarding the operation in general, herd inventory, purchases, sales, capital expenditures, veterinary expenditures, labor, feeding rates and expenditures, utilities, and other miscellaneous expenses. For hunting operations, the base operational questions remained the same; however, hunting related questions were included as well, such as the number of hunters, harvest rate, percentage of herd from breeding operations, hunt revenues, processing, and taxidermy.

Survey Results

On average, there was very little difference in the herd structure of breeding only operations and breeding and hunting operations (Table 1). For deer breeding, operations that specialize in breeding only use about 23 acres, and breeding and hunting operations dedicate an average of 30 acres to breeding. The number of pens on the property is typically determined by the size of the herd. Deer are grouped based on age, typically with about 20 does per pen per buck. Breeding and hunting operations had more pens on the property. This is because these ranches typically used the breeding operation to stock the hunting operation. Breeding and hunting operations have an average of 15 pens on 21 acres of land. Those operations that are dedicated to breeding only were slightly smaller with 9 pens on 16 acres.

The survey results revealed that breeding operations averaged 83 breeder deer with 34 breeder bucks, 28 stocker bucks, 39 does, and 33 fawns. Breeding only operations reported an average annual mortality rate of 12.5%. This mortality rate refers to the death percentage of deer over 12 months of age. Breeding and hunting operations reported a larger herd. Breeding and hunting operations average 163 breeder deer with 61 breeder bucks, 46 stocker bucks, 76 does, and 59 fawns (Table 1). Breeding and hunting operations reported an average annual mortality rate of 5.5%.

Operational Costs

When assessing operational costs for deer breeding versus breeding and hunting operations, it is apparent that breeding and hunting operations had higher costs associated with obtaining their herd (Table 2). The most significant differences were in the cost of stocker bucks, doe, fawn, exotics and semen costs. In total, breeding

Table 2: Average Breeding Stock Purchases in 2015.

	Breeding	Breeding and Hunting
Number Purchased		
Breeder Bucks (number)	2	1
Total Cost of Breeder Bucks (dollars)	\$14,770	\$20,929
Stocker Bucks (number)	0	14
Total Cost of Stocker Bucks (dollars)	\$0	\$61,100
Open Does (number)	1	5
Total Cost of Open Does (dollars)	\$7,429	\$17,900
Bred Does (number)	2	6
Total Cost of Bred Does (dollars)	\$18,450	\$40,208
Fawns (number)	2	4
Total Cost of Fawns (dollars)	\$7,046	\$14,563
Semen (number)	6	9
Total Cost of Semen Straws (dollars)	\$11,840	\$25,734
Exotics (number)	0	14
Total Cost of Exotics (dollars)	\$0	\$20,741
Total Cash Cost for Breeding, Hunting Stock and Semen	\$59,535	\$201,175

stock and semen purchases for breeding only operations averaged \$59,535 while breeding and hunting operations spent an average total of \$201,175 on breeding stock in 2015.

Data describing the normal production practices and expenditures for breeding and hunting operations were collected, as well as the number of hunters and non-hunters that use the facility. In 2015, the average breeding and hunting operation had 47 hunters and 72 non-hunters. These operations release an average of 23 stocker deer and 14 exotic deer. The average annual total cost of released stocker deer was \$61,100, and the cost of released exotic deer averaged \$20,741. These operations also reported an average of 52 deer and 16 exotics harvested each year.

Of the total number of harvested animals on breeding and hunting operations, 11% are sent to a taxidermist. Breeding and hunting operations reported an average taxidermy cost of \$635 per animal. Another cost incurred when harvesting animals is a meat processing cost. These operations spent an average of \$227 per animal for meat processing.

Table 3 provides a summary of average annual capital and operational expenditures for breeding and breeding and hunting operations. The first cost category refers to capital expenditures (the cost to acquire fixed assets). The most significant fixed asset in the deer breeding industry is land. The total average land value for breeding only operations is \$211,148 while the total land value of breeding and hunting operations is \$4,854,645.

Other capital expenditures include fencing, shelters, improvements, and buildings. Other facility costs include handling facilities as well as lodging and other guest facilities. Handling facilities ease tasks associated with herd management. Of breeding only operations, 73% chose to invest in a handling facility. These facilities averaged \$27,086 for breeding only operations. Eighty percent of breeding and hunting operations had handling facilities. The average cost of a handling facility for breeding and hunting operations is \$77,809. The final cost in this category is lodging and guest facilities. These facilities cost breeding and hunting operations an average of \$563,392.

Equipment is another expensive capital item. It includes large equipment such as tractors or bobcats, ranch vehicles, ATVs, trailer and transport crates, as well as feeding equipment. In addition, this category also includes camera/video equipment, sedation equipment, hunting blinds, freezers or coolers, and a category labeled other

Table 3: Average Annual Operational Costs.

	Breeding	Breeding and Hunting
Operation		
Year Started	2004	2004
Area of Breeding Operation (acres)	23	30
Area of Hunting Operation (acres)	N/A	1,508
Number of Pens	9	15
Area of Pens (acres)	16	21
Capital Expenditures		
<u>Fixed Expenses</u>		
Land Inherited (acres)	N/A	900
Land Purchased (acres)	23	1,005
Total Land Value (\$)	\$211,148	\$4,854,645
Fencing (\$)	\$50,605	\$130,990
Shelters (\$)	\$36,031	\$49,152
Improvements (\$)	\$15,054	\$26,485
Buildings (\$)	\$51,858	\$117,240
Handling Facility (\$)	\$27,086	\$77,809
Lodging and Guest Facilities (\$)	N/A	\$563,392
Total Fixed Expenses (\$)	\$391,782	\$5,819,713
<u>Equipment</u>		
Large Equipment (\$)	\$72,945	\$129,774
Farm Implements (\$)	\$49,100	\$30,409
ATVs (\$)	\$15,323	\$25,206
Ranch Vehicles (\$)	\$40,662	\$58,003
Trailers/Transport Crates (\$)	\$14,028	\$19,981
Feeding Bins/Feeding and Watering Equipment (\$)	\$19,364	\$30,510
Camera/Video Equipment (\$)	\$4,296	\$4,389
Sedation Equipment (\$)	\$4,063	\$4,146
Hunting Blinds (\$)	N/A	\$39,149
Freezer/Cooler (\$)	\$3,000	\$6,983
Other Equipment (\$)	1,612	\$6,428
Total Cost of Equipment (\$)	\$224,393	\$354,978
Annual Operating Expenses		
<u>Veterinary and Animal Supplies</u>		
Medical Supplies (\$)	\$2,958	\$4,392
Veterinary Expenses (\$)	\$4,271	\$5,406
Sedations (\$)	\$2,957	\$4,774
Artificial Insemination (\$)	\$5,793	\$13,942
CWD Testing (\$)	\$718	\$3,025
DNA Testing (\$)	\$1,746	\$4,595
I.D. Tags/RFID Tags/Microchips (\$)	\$232	\$580
Total Cost of Veterinary & Animal Supplies (\$)	\$18,675	\$36,714

Table 3: Average Annual Operational Costs (Continued).

	Breeding	Breeding and Hunting
<u>Labor</u>		
Number of Salaried Employees	2	2
Number of Hourly Employees	2	2
Number of Part-time Employees	3	2
Total Salary Wages Paid (\$)	\$53,778	\$75,231
Annual Salary Per Employee (\$)	\$21,847	\$35,980
Total Hourly Wages Paid (\$)	\$23,420	\$24,118
Annual Hourly Wages Per Employee (\$)	\$13,383	\$14,069
Total Part-Time Wages Paid (\$)	\$6,500	\$12,716
Annual Part-Time Wages Per Employee (\$)	\$2,061	\$5,651
Outsources Services (\$)	\$3,496	\$10,101
Total Labor Expenses	\$87,194	\$122,166
<u>Utilities</u>		
Utilities (\$)	\$3,164	\$7,204
Fuel (\$)	\$2,363	\$5,674
Total Cost of Utilities (\$)	\$5,527	\$12,878
<u>Miscellaneous</u>		
Feed and Hay (\$)	\$61,799	\$170,839
Food and Beverages for Guests (\$)	N/A	\$9,288
Maintenance and Repairs (\$)	\$8,772	\$12,454
Rental Equipment (\$)	\$1,859	\$4,002
Operating Supplies (\$)	\$6,518	\$8,982
Lodge Supplies (\$)	N/A	\$10,654
Insurance (\$)	\$3,494	\$8,357
Advertising/Marketing (\$)	\$18,086	\$7,284
Taxidermy (\$)	\$1,587	\$5,717
Travel/Meeting Attendance (\$)	\$2,792	\$4,658
Property Taxes (\$)	\$3,029	\$10,513
Permit/Licenses (\$)	\$266	\$527
Hunting Lease (\$)	N/A	\$12,813
Seed and Fertilizer (\$)	N/A	\$4,453
Other Expenses (\$)	\$9,973	\$21,052
Total Cost of Miscellaneous Expenses (\$)	\$118,175	\$291,593

equipment. Breeding operations spent an average of \$224,393 on equipment while breeding and hunting operations averaged \$354,978.

The next category of costs contains information related to annual operating expenses. The first section is veterinary and animal supplies, which includes the cost of medical supplies, veterinary services, sedations, artificial insemination, DNA testing, CWD testing, and I.D. tags. The total cost to breeding only operations averaged \$18,675 annually, and breeding and hunting operations averaged \$36,714 each year. The newest cost category is the cost of CWD testing. Testing for CWD costs for breeding only operations averaged \$718 each year while breeding and hunting operations averaged \$3,025 per year.

Labor makes up a large percentage of total operating expenses. The average breeding only operation employs a total of 7 employees and the average breeding and hunting operation has 6 employees. Of the survey respon-

dents, breeding only operations reported an average total wages expense of \$83,698 per year while breeding and hunting operations spent \$112,065 per year.

Both types of operations outsourced certain services. Breeding only operations paid about \$3,496, while breeding and hunting operations paid an average of \$10,101 annually.

Another expense incurred by breeding and hunting operations is utilities. Breeding only operations paid an annual average of \$3,164 for utilities and \$2,363 for fuel. Breeding and hunting operations spent an average of \$7,204 for utilities and \$5,674 for fuel.

The final operating expense category is described as miscellaneous expenses. The largest cost in this category is feed and hay. Supplemental feed can allow genetically superior animals to realize their full potential. For breeding only operations, the total cost of feed includes the cost of feed and hay, protein feed for penned animals, textured/treated feed for penned animals, alfalfa hay for penned animals, and the cost of feeding fawns. The total cost of feed for fawns includes milk replacers and fawn supplement feed. Breeding only operations had an average annual total feed cost of \$61,799. The majority of that expenditure comes from feed and hay, representing 52% of total miscellaneous costs.

The total feeding cost for breeding and hunting farms combines the cost of feed and hay, protein feed for breeding animals, textured/treated feed, alfalfa hay, the total cost of fawn feed, as well as protein feed for pasture animals, and corn/bait food for pasture animals. Total feeding costs for breeding and hunting operations averaged \$170,839 annually. Feed and hay is about 59% of total miscellaneous costs. Breeding and hunting operations also indicated food plots were on the property. The average operation has 245 acres of food plots. The main costs associated with food plots are the cost of seeds and fertilizer and the cost to maintain them. Breeding and hunting operation's annual average expenditure for seed and fertilizer is \$4,453. Maintaining these food plots costs these operations about \$4,498 annually.

This section also includes the cost of lodging supplies and food and beverages for guests. While breeding only operations do not incur this cost, hunting and breeding operations have a significant expenditure. Breeding and hunting operations averaged \$19,942 each year for guests' food and beverages and lodge supplies. Other expenses included the cost of maintenance and repairs and rental equipment. Breeding only operations average \$8,772 annually on maintenance and repairs, while breeding and hunting operations average \$12,454 annually. Other miscellaneous costs include the cost of operating supplies, insurance, advertising/marketing, and taxidermy.

Operating supplies are also significant costs to deer operations. Operating supplies cost breeding only operations \$6,518 and breeding and hunting operations \$8,982 per year. Other miscellaneous expenses include insurance, advertising and marketing, taxidermy, travel and meeting expenses, and property taxes.

On average, breeding operations paid a total of \$3,494 on insurance. The average insurance cost to breeding and hunting operations was far more significant, with insurance costs averaging \$8,357. Other miscellaneous expenses include the cost of leasing hunting land and other miscellaneous expenses. On average, the cost of leasing hunting land for breeding and hunting operations was \$12,813.

Figure 1 illustrates a breakdown of the annual costs of typical deer breeding only operation. Operational expenses cover supplies, labor, utilities, insurance, maintenance, travel, etc. Operational expenses averaged \$144,215 for breeding operations. This category accounts for 63 percent of total costs. Feed includes the cost of feed and hay, supplemental feed, and fawn feeding supplies. Feeding expenditures account for 27% of total costs. Breeding operations spent an average of \$61,799 for feed. General expenses include the cost of veterinary expenses, CWD testing, DNA testing, taxes, permits, taxidermy, etc. General expenses amount to only about 10% of total operation costs. Breeding operations spent about \$23,557 on these expenses. The break-

down for breeding and hunting operations was – operational expenses (51%), feed and hay (37%) and general expenses (12%) (Figure 2).

Income

Income associated with deer breeding and hunting operations comes from a variety of areas (Table 4). The survey was used to collect data on the sales of breeder bucks, stocker bucks, open does, bred does, fawns, and semen straws.

Breeding only operations sold an average of 4 breeder bucks and 11 stocker bucks. Income for breeder bucks averaged \$45,724 and stocker buck income averaged \$45,139. Sales of open does, bred does, fawns, and semen

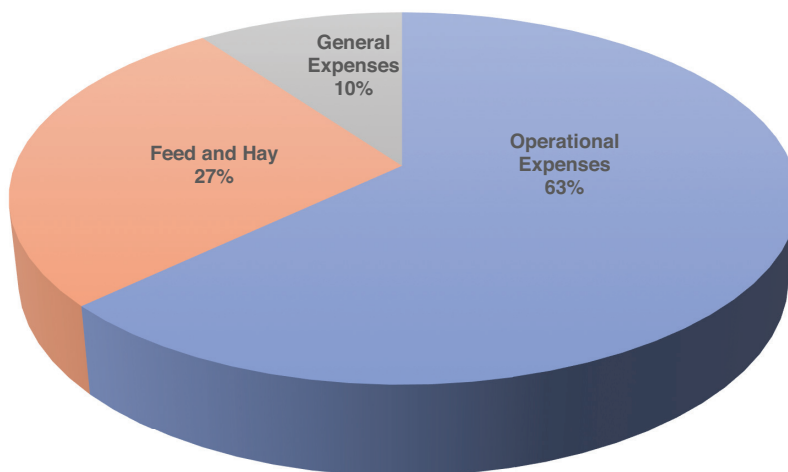


Figure 1: Annual Operation Expenditures for Breeding Only Operations.

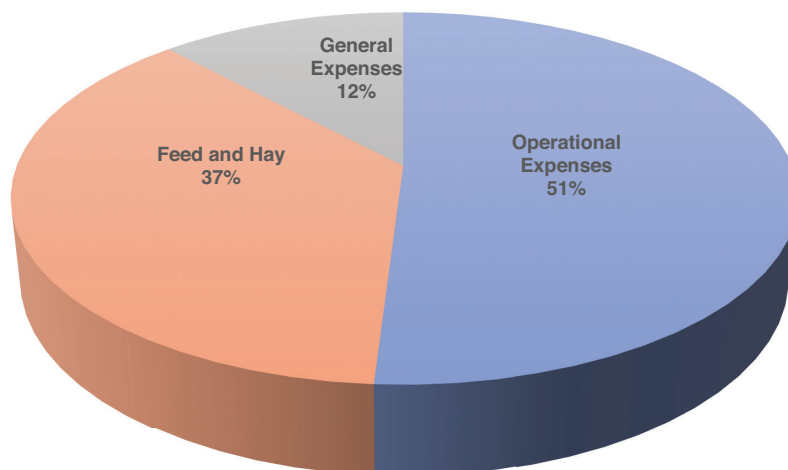


Figure 2: Annual Operation Expenditures for Breeding and Hunting Operations.

Table 4: Annual Income From Breeding Stock.

	Breeding	Breeding and Hunting
Breeder Bucks Sold (number)	4	3
Income from Breeder Bucks (\$)	\$45,724	\$37,850
Stocker Bucks Sold (number)	11	18
Income from Stocker Bucks (\$)	\$45,139	\$92,227
Open Does Sold (number)	6	9
Income from Open Does Sold (\$)	\$7,820	\$17,760
Bred Does Sold (number)	8	15
Income from Bred Does Sold (\$)	\$26,562	\$53,126
Fawns Sold (number)	7	6
Income from Fawns (\$)	\$10,674	\$40,994
Semen Straws Sold (number)	14	27
Income from Semen Straws Sold (\$)	\$19,371	\$34,467
Total Income from Deer and Semen Sales	\$155,290	\$276,424

Table 5: Annual Income From Hunting and Outdoor Activities.

	Breeding and Hunting
Hunters (number)	47
Income from Hunters (\$)	\$145,620
Income from Exotic Species Hunters (\$)	\$24,878
Income from Other Game Species Harvested on Property (\$)	\$8,781
Income from Outdoor Non-Hunter Activities (\$)	\$39,500
Total Income from Hunting and Outdoor Activities	\$218,779

straws totaled an average of \$64,427. In total, the average income derived from deer and semen sales for a deer breeding operation in 2015 was \$155,290.

Income for breeding and hunting operations is shown divided into two parts. Income from the breeding operation comes from animal sales (Tables 4 and 5). These breeding and hunting operations sold an average of 3 breeder bucks for a total income of \$37,850. Income from selling 18 stocker bucks totaled \$92,227. Breeding and hunting operations sold an average of 9 open does and 15 bred does. Income from open does averaged \$17,760. Income from bred does averaged \$53,126. For breeding and hunting operations, income from sales of fawns and semen straw was significant. On average, 6 fawns were sold for a total of \$40,994. In 2015, breeding and hunting operations sold an average of 27 semen straws for a total income of \$34,467.

Table 5 includes the income from the hunting operations that comes from the deer hunters, non-hunters, exotic hunters, other game on the property, and outdoor enthusiasts. The average breeding and hunting operation hosted 47 hunters and 72 non-hunters. Of these hunters, deer hunters provided an average of \$145,620 in income and exotic hunters provided \$24,878. Income from non-hunters averaged a \$39,500. Several operations stated other animals were hunted on the property such as dove, turkeys, ducks, and other birds. Income from other game averaged \$8,781. Some operations also reported income from other activities that take place on the property. These activities included bike races, ATV riding, fishing, leasing to outdoor writers, and camping. In 2015, the average total income from operations associated with the breeding and hunting of deer was \$218,779.

Economic Impact

IMPLAN® (Impact Analysis for Planning), an input/output model, was used to estimate the economic impact of the deer breeding industry on the U.S. economy. Originally developed by the U.S. Forest Service, the IMPLAN model is now managed and maintained by the Minnesota IMPLAN Group (MIG). The model is, arguably, the most used and cited model for performing economic impact analyses in the United States. The IMPLAN model is driven by purchases of final goods and services in a certain region, such as a state, a group of states, or the entire nation. These purchases represent the dollar value of the increase in finished goods and services demanded, and create an impact that ripples throughout the economy. Industries produce goods and services for final use and purchase goods and services from other industries. These other producers and industries buy goods and services as well, which IMPLAN designates as indirect purchases. In addition, each step along the cycle pays wages and salaries to employees, who, in turn, make additional expenditures into the economy of the region.

In determining the overall economic impact of an industry, the IMPLAN model uses a set of multipliers, separated by sector, to estimate the direct, indirect, and induced effects (induced being effects of household spending) on the economic cycle. Over 500 sector codes are included in the IMPLAN model, where each code represents a unique industrial sector that a specific product or category of products is represented. The multipliers that are derived for each sector quantify the ripple effects of a dollar increase in final demand, thus resulting in an estimation of the economic impact.

Output is a measure of the value of goods and services produced as a result of the increased demand created by expenditures by deer operations. Output is measured by purchases of all intermediate production inputs and value added. Value Added is the total wages and salaries plus business profits generated by the economic activities of a particular industry. In this case Value Added is the direct and indirect wages, salaries and profits generated by the activities of buying inputs and production products by deer farm operators. Number of Jobs is the number of all wage and salary employees as well as self-employed jobs resulting from total expenditures by deer farms. The number of jobs does not accumulate, because it is an annual measure. Labor income is an IMPLAN calculation based on number of jobs and survey wage information by the Bureau of Economic Activity and the USDA-ARMS survey.

Results

In determining the economic impact of the deer breeding industry, the categories of the survey were prepared for input into the IMPLAN model. This was accomplished by extrapolating the survey results against the inventory of operations to arrive at total industry expenditures for each category. These totals represent the value of final goods and services demanded by the industry and were the baseline inputs for the IMPLAN model.

Table 6 provides a summary of the economic impact of the U.S. deer breeding industry. Deer breeding operations generate an estimated \$918.3 million in direct economic impacts on the U.S. economy. This value represents the estimated increase in final demand of all goods and services consumed by the industry. These industries include feed suppliers, farm and ranch supply stores, veterinary services, medical and sedation product suppliers, construction, utilities, advertising, insurance, and numerous others. As these direct expenditures are multiplied throughout the economy, the deer breeding industry generates an estimated \$2.6 billion of economic activity. This value represents the total industry output generated by the deer breeding industry and those industries that supply it. The additional expenses associated with hunting operations adds an additional \$5.2 billion in economic impacts.

When combined, the deer breeding and deer hunting operations within the industry generates \$7.9 billion of economic activity for the U. S. economy. In addition, the industry provides the economic activity that supports 56,320 jobs in the economy, most of which are located in rural areas.

Table 6: Economic Impact Results.**Economic Impact of Deer Breeding on the U.S. Economy, 2015.**

Impact Type	Employment (#)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effect	9,431	\$448,310,494	\$532,217,339	\$918,284,000
Indirect Effect	3,458	\$190,219,581	\$312,377,844	\$744,530,332
Induced Effect	5,770	\$297,337,717	\$519,841,567	\$951,393,631
Total Effect	18,659	\$935,867,792	\$1,364,436,750	\$2,614,207,963

Economic Impact of Deer Hunting from Breeding Operations on the U.S. Economy, 2015.

Impact Type	Employment (#)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effect	19,035	\$904,840,401	\$1,074,192,455	\$1,853,404,000
Indirect Effect	6,979	\$383,926,685	\$630,482,885	\$1,502,711,030
Induced Effect	11,647	\$600,126,882	\$1,049,214,012	\$1,920,230,300
Total Effect	37,661	\$1,888,893,969	\$2,753,889,352	\$5,276,345,331

Total Economic Impact of the Deer Breeding and Hunting Industry on the U.S. Economy, 2015.

Impact Type	Employment (#)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effect	28,466	\$1,353,150,895	\$1,606,409,794	\$2,771,688,000
Indirect Effect	10,437	\$574,146,266	\$942,860,730	\$2,247,241,363
Induced Effect	17,417	\$897,464,599	\$1,569,055,578	\$2,871,623,931
Total Effect	56,320	\$2,824,761,761	\$4,118,326,102	\$7,890,553,294

Conclusion

The U.S. deer breeding industry has an established presence across the nation, with the majority of operations located in rural areas. In addition, while traditional farms overwhelmingly dominate the hunting industry, the small niche of hunters this market serves continues to increase in importance to the economy. The increase in demand is fueling the growth in the breeding industry. Over \$2.6 billion in direct expenditures are poured into the U.S. economy each year by the deer breeders and sportsmen of this industry. In turn, this generates \$7.9 billion of economic activity. All told, these results highlight the fact that the deer breeding industry continues to be an important and vital contributor to the rural economies of the United States.

National Cervid Industry Economic Impact Survey

Please indicate type of operation

Breeding Only ___ **Breeding and Hunting** ___ **Hunting Only** ___ **Scent Collection** ___ **Venison** ___ **Velvet** ___

Species - Axis ___ **Elk** ___ **Fallow** ___ **Mule Deer** ___ **Red Deer** ___ **Reindeer** ___ **Sika** ___ **Whitetail** ___
Other _____

Instructions are provided at the end of the survey. For Hunting Only operations, please skip first two pages. Please use 2014 annualized figures where appropriate.

I. Operation

1. Year started _____ 2. Area of breeding operation: _____ (acres) 3. Land valuation: \$ _____

II. Herd Inventory (Final 2014 inventory, or 2015 if appropriate)

1. Total number of breeder animals (Cervids) _____
2. a. Total # bucks _____ b. Number of stocker bucks _____ c. Number of does _____
3. a. Fawns in 2014 _____ b. Fawns in 2015 _____
4. Annual mortality rate (12 mo. and older) _____ %

5. Annual sales (2014 figures)

Breeder Bucks: _____	Income \$: _____
Stocker Bucks: _____	Income \$: _____
Open Does: _____	Income \$: _____
Bred Does: _____	Income \$: _____
Fawns: _____	Income \$: _____
Semen straws: _____	Income \$: _____
Gallons of Urine _____	Income \$: _____
Animals butchered: _____	Income \$: _____
Pounds of Velvet: _____	Income \$: _____

Annual Purchases (2014 figures)

Breeder Bucks: _____	Costs \$: _____
Stocker Bucks: _____	Costs \$: _____
Open Does: _____	Costs \$: _____
Bred Does: _____	Costs \$: _____
Fawns: _____	Costs \$: _____
Semen straws: _____	Costs \$: _____

III. Facilities

1. Number of pens: _____ 2. Area of pens: _____ (acres)
3. Capital cost fencing: \$ _____ 4. Capital cost of shelters: \$ _____
5. Capital cost of other improvements like roads, water lines, etc.: \$ _____
6. Capital cost of buildings: \$ _____
7. Do you have a handling facility? Yes ___ No ___ 7a. If yes, capital cost of facility: \$ _____
8. Do you have a misting system? Yes ___ No ___ 8a. If yes, capital cost of system: \$ _____
9. Annual cost of maintenance and repairs: \$ _____

IV. Equipment

1. Purchase price of all large equipment, combined (i.e. tractor or bobcat): \$ _____
2. Purchase price of all ranch vehicle(s), combined: \$ _____
3. Purchase price of ATV(s), combined: \$ _____
4. Purchase price of all implements, combined: \$ _____
5. Purchase price of all trailer(s)/transport crate(s), combined: \$ _____
6. Purchase price of all bulk feed bin(s)/mixing system, combined: \$ _____
7. Purchase price of all feeding and watering equipment, combined: \$ _____
8. Purchase price of all camera/ video equipment, combined: \$ _____
9. Annual cost of all rental equipment: \$ _____
10. Purchase price of portable insect sprayer/fogger \$ _____
11. Annual cost of semen storage: \$ _____
12. Annual cost of dart/sedation equipment; \$ _____
13. Purchase price of dart gun: \$ _____

V. Veterinary & Animal Supplies

- | | |
|--|--|
| 1. Annual cost of operating supplies: \$ _____ | 2. Annual cost of feed and hay: \$ _____ |
| 3. Annual cost of medical supplies: \$ _____ | 4. Annual veterinary expense: \$ _____ |
| 5. Annual number of sedations: _____ | 6. Annual cost of sedations: \$ _____ |
| 7. Annual number of does A.I.'d: _____ | 8. Annual cost for A.I.'ing: \$ _____ |
| 9. Annual number of CWD tests: _____ | 10. Annual CWD costs: \$ _____ |
| 11. Number of animals DNA tested: _____ | 12. Annual cost for DNA certifications: \$ _____ |
| 13. Annual costs for I.D. tags/Rfid tags/microchips/other: _____ | |
| 14. Insecticide costs: \$ _____ | |
| 15. Annual miscellaneous costs: _____ | |

VI. Labor

- | | | | |
|--|----------------|--------------|-----------------|
| 1. Number of employees: | Salaried _____ | Hourly _____ | Part-time _____ |
| 2. Total wages paid: | Salaried _____ | Hourly _____ | Part-time _____ |
| 3. Annual expense for outsourced services: _____ | | | |

VII. Utilities

- | |
|--|
| 1. Annual cost of utilities: \$ _____ |
| 2. Annual cost of fuel/diesel/etc.; \$ _____ |

VIII. Miscellaneous Expenses

- | |
|---|
| 1. Annual insurance expense; \$ _____ |
| 2. Annual advertising/marketing expense: \$ _____ (include booths/sponsorships/ads/web) |
| 3. Annual taxidermy expense: \$ _____ |
| 4. Annual travel/meeting attendance expense: \$ _____ |
| 5. Annual property taxes: \$ _____ |
| 6. Wildlife/Agriculture permit costs: \$ _____ |
| 7. Other costs (specify): \$ _____ |

IX. Feeding

Fawns

- | |
|---|
| 1. Do you bottle feed? All _____ Some _____ No _____ (skip to # d.) |
| a. Annual cost of milk replacer: \$ _____ |
| b. Annual cost of fawn supplement feed: \$ _____ |
| c. Annual cost of fawn care products: \$ _____ |
| d. Annual cost for outside fawn care services if No above: \$ _____ |
| 2. Annual cost of protein feed for breeder penned animals: \$ _____ |
| 3. Annual cost for textured/treat feed for breeder penned animals: \$ _____ |
| 4. Annual cost for alfalfa hay for breeder penned animals: \$ _____ |

X. Other Expenses

Please list and explain any other costs not previously covered for breeder animals:

Hunting

Instructions are provided at the end of this survey. For combination Breeding and Hunting operations, please separate hunting expenses from breeding expenses. Use annualized 2014 figures where appropriate.

What is the purpose of your hunting operation? ___ Personal use; ___ Corporate clients, no fee; ___ Paying clients

I. Operation

1. Year started: _____ (acres)
2. Land purchased: _____ (acres)
3. Capital cost of habitat, roads, water improvements, guest conveniences (combined): \$ _____
4. Land inherited: _____ (acres)
5. Total land valuation: \$ _____

II. Facilities

1. Capital cost of lodge(s) or guest facilities: \$ _____
2. Capital cost of perimeter fencing: \$ _____
3. Capital cost of habitat, roads, water improvements, guest conveniences (combined): \$ _____
4. Capital cost of other buildings: \$ _____
5. Annual cost of maintenance and repairs: \$ _____
6. Approximate area of food plots: _____ (acres)
7. Estimated cost of labor to maintain food plots: \$ _____
8. Annual cost of seed and fertilizer for food plots: \$ _____

III. Equipment (Note if equipment is shared between breeding and hunting operations, use proportioned \$\$)

1. Purchase price of all large equipment, combined (i.e. tractor or bobcat): \$ _____
2. Purchase price of all farm implements, combined: \$ _____
3. Purchase price of all ATV(s), combined: \$ _____
4. Purchase price of all ranch vehicle(s), combined: \$ _____
5. Purchase price of all trailer(s)/transport crate(s), combined: \$ _____
6. Purchase price of bulk feed bin(s)/all feeding and watering equipment: \$ _____
7. Purchase price of all video/trail camera(s) equipment, combined: \$ _____
8. Purchase price of all dart gun/darts/sedation equipment: \$ _____
9. Annual cost of all rental equipment: \$ _____
10. Purchase price of cooler/freezer equipment: \$ _____
11. Purchase price for all hunting blinds: \$ _____
12. Purchase price of all other equipment: \$ _____

IV. Supplies

1. Annual cost of operating supplies for guest accommodations: \$ _____
2. Annual cost of food and beverages for guest operations: \$ _____
3. Annual cost for protein feed for pasture animals: \$ _____
4. Annual cost for corn/bait food for pasture animals: \$ _____

V. Labor

1. Number of employees: Salaried _____ Hourly _____ Part-time _____
2. Total wages paid: Salaried _____ Hourly _____ Part-time _____
3. Annual expense for outsourced services: _____

VI. Utilities

1. Annual cost for utilities: \$ _____
2. Annual cost for fuel/diesel/etc.: \$ _____

VII. Miscellaneous Expenses

1. Annual insurance expense: \$ _____
2. Annual advertising/marketing expense (include booths/sponsorships/ads/web): \$ _____
3. Annual taxidermy expenses: \$ _____
4. Annual travel/meeting attendance expense: \$ _____
5. Annual property taxes: \$ _____
6. Wildlife/Agriculture (DNR) licenses and permit costs: \$ _____
7. Hunting lease costs (for non-owned lands): \$ _____
8. Other costs (specify): \$ _____

VII. Other Expenses

Please list and explain any other costs not previously covered for hunting animals:

VIII. Hunters (Guests)

1. Annual number of hunters: _____
2. Annual number of non-hunters: _____
3. Annual deer hunter income: \$ _____
4. Annual exotic hunter income: \$ _____
5. Annual non-hunter income: \$ _____
6. Total number of deer harvested: _____
7. Total number of exotics harvested: _____
8. Annual number of stocker deer released into the hunting area(s): _____
9. Annual cost for stocker deer released for hunting: \$ _____
10. Annual number of exotic animals released into the hunting area(s): _____
11. Annual cost for exotic animals released for hunting: \$ _____
12. Approximate percentage of harvested animals sent to taxidermists: _____%
13. Average client taxidermy cost per animal: \$ _____
14. Are other game species harvested in your hunting area(s)? ____Yes ____No
15. Annual income from other game species (if charged for separately): \$ _____
16. Other outdoor enthusiasts income derived from hunting property: \$ _____
Specify _____

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Agricultural and Food Policy Center
Department of Agricultural Economics
Texas A&M University
College Station, Texas 77843-2124

or call (979) 845-5913.

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