



# The Economic and Social Contributions of the Animal Health Industry

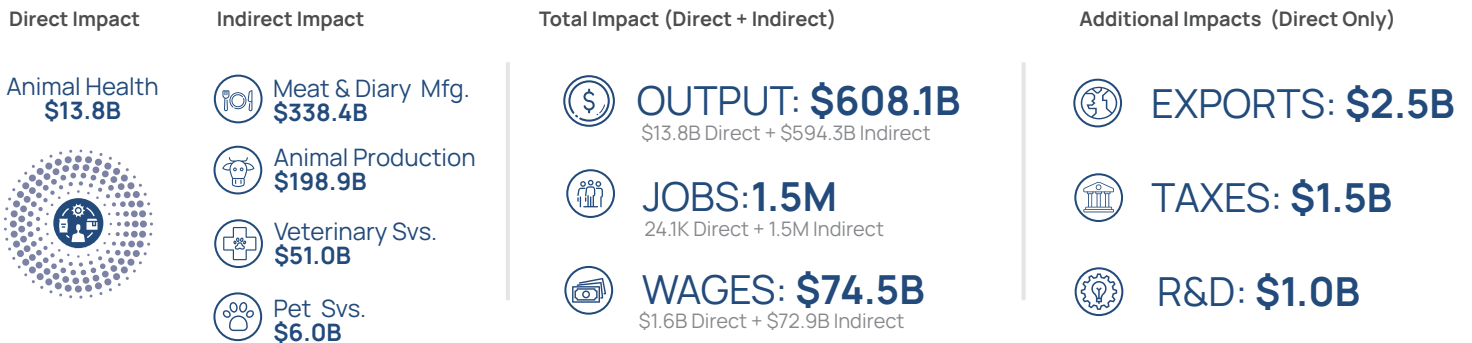
December 2022



# The Economic & Social Contributions of the U.S. Animal Health Industry

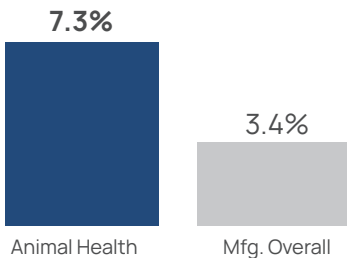
Animal health manufacturers develop and produce medicines, vaccines, and other products for food and companion animals. These products are critical to animal-related industries.

## The animal health industry supports \$608.1 B in economic activity.

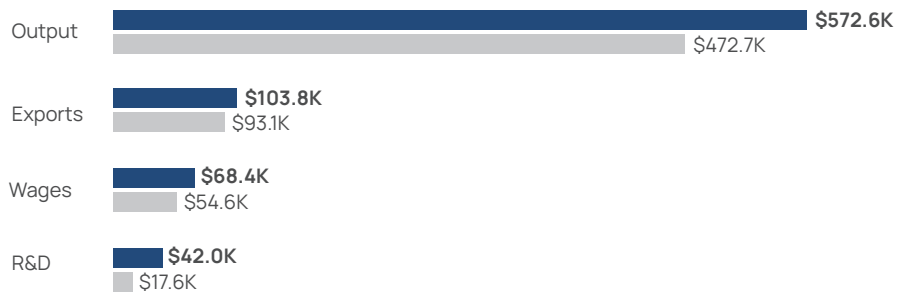


## The animal health industry invests heavily in R&D and outperforms the manufacturing sector overall across key economic indicators.

R&D as % of sales






Economic performance per worker

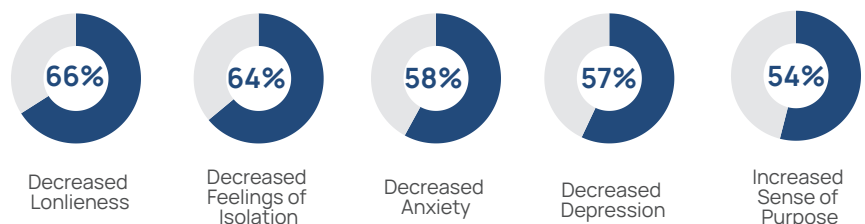


## The animal health industry improves food safety and availability and, by protecting pets, positively supports mental and emotional health.

### Animal health products protect the food supply

-  **Brucellosis vaccination programs** protect against foodborne disease and reduce economic losses caused by the disease
-  **The E. Coli vaccine** for cattle is capable of reducing cases in humans by 85%
-  **Rinderpest vaccines** and interventions have eradicated this devastating cattle disease

### Animal companionship improved mental health during COVID-19



# The Economic and Social Contributions of the Animal Health Industry

ndp | analytics<sup>1</sup>

*Propelled by the human-animal bond and increased global focus on zoonosis and food security, the animal health industry has grown in the past three years even as other industries have struggled with COVID-19 restrictions and supply chain disruptions.*

The animal health industry manufactures safe, effective, and innovative products that protect and improve the health and welfare of companion and food-producing animals. The industry is integral to the U.S. economy and creates jobs across the country. Manufacturers produce critical medicines, such as pharmaceuticals and vaccines, flea and tick protection, and nutritional products used by pet owners and animal-related businesses including veterinary clinics, farms and ranches, and pet services. These businesses rely on animal health products to generate economic activity. Thus, the combination of the direct economic impact of animal health manufacturers plus the economic impact of industries that rely on animals is far reaching.

The social benefits of healthy animals have become even more pronounced in recent years. Animal health products protect food-producing animals from diseases that affect food availability and safety for consumers. These products also ensure the health of companion animals who improve the mental and physical wellbeing of their human caretakers, serve as aides, and assist with therapy for those in need. These needs substantially increased during the COVID-19 pandemic, which was paralleled by a rise in the prevalence of mental health issues and the desire for companionship. Finally, discoveries in animal health research inform and advance research and development of novel therapies for humans. While some of these benefits are not easily quantifiable, they are an important contribution of the animal health industry.

## U.S. ANIMAL HEALTH LANDSCAPE

Animal health manufacturers are innovative biopharmaceutical companies that invest in research and development (R&D) and create medicines for food-producing and companion animals. These products range from cancer therapies to vaccines and medicines that prevent and treat diseases such as foot and mouth, rabies, and Lyme. The industry also develops products to protect animals from common disease carriers, such as fleas and ticks, and improve overall health and nutrition. The industry collaborates with farmers and ranchers, government agencies, veterinarians, and others to ensure the health and safety of food-producing and companion animals.

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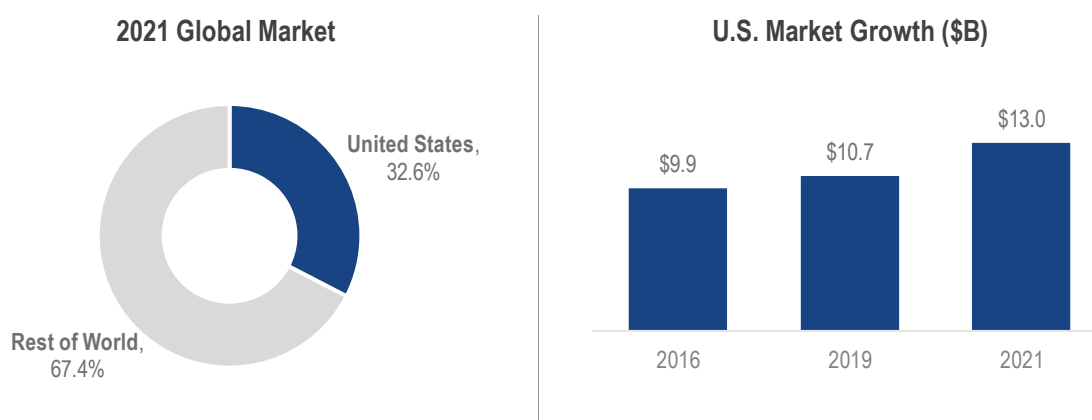
<sup>1</sup> Nam D. Pham is Managing Partner and Mary Donovan is Principal at ndp | analytics. Ilma Fadhil and Aayushi Gupta provided analytical assistance. We would like to thank the Animal Health Institute for their financial support to conduct this study. The opinions and views expressed in this report are solely those of the authors.

## Animal Health Market

The animal health market reached a new high in 2021, driven by increased demand for protein food, prevalence of zoonotic and food-borne diseases, advancements in vaccines and medications, and pet ownership.<sup>2</sup> The global animal health market was estimated at \$39.9 billion in 2021.<sup>3</sup> The U.S. accounts for nearly one third of the global market (32.6%), generating an estimated \$13.0 billion in sales in 2021. In the U.S. animal health products make up about 2% of the total biopharmaceutical spending (\$13.0 billion in sales of animal health product compared to \$574 billion for human medicines).<sup>4</sup> (Figure 1)

The animal health market has continued to grow, even with COVID-19 restrictions and supply chain challenges.<sup>5</sup> Like other innovative manufacturing industries, the animal health industry has been less affected by economic downturns compared to its counterparts.<sup>6</sup> While most industries suffered losses since the COVID outbreak, the animal health industry has accelerated in the U.S. market. After maintaining a steady growth of an average 3% per year from 2016 to 2019, sales of animal health products in the U.S. increased by an average of 10% annually since 2019.<sup>7</sup> (Figure 1)

Figure 1.  
**Growth of the U.S. Animal Health Market<sup>8</sup>**



<sup>2</sup> IMARC Services Private Limited. 2022. "Animal Health Market 2022: Trends, Size, Share, Growth, Outlook and Report 2027." Newswire; Biospace. 2022. "Animal Health Market Size 2022-2028- Rising Incidence Of Diseases In Livestock, As Well As Companion Animals And Increasing Investments In Research And Development Activities, Are Key Factors Fueling Global Market Growth." May 2023.

<sup>3</sup> Global and U.S. market sizes are estimated based on findings from BioSpace, Grand View, IMARC, and Axxoim Consulting.

<sup>4</sup> Mikulic, Matej. 2022. "U.S. Total Medicine Spending 2002-2021." Statista. Jun 8.

<sup>5</sup> Grand View Research. 2022. "Animal Health Market Size, Share & Trends Analysis Report, 2022 – 2030."

<sup>6</sup> Pham, Nam. 2021. IP-Intensive Industries drive Economic Growth. ndp | analytics.

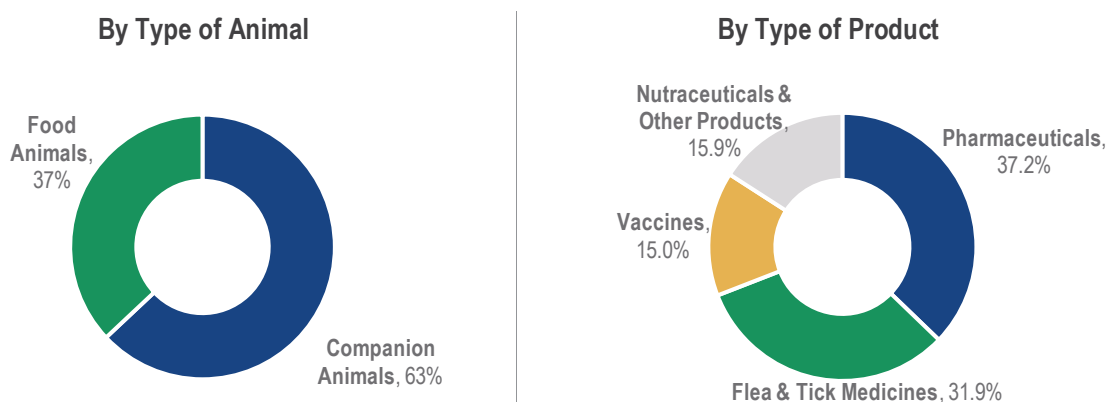
<sup>7</sup> Grand View Research. 2022. "Animal Health Market Size, Share & Trends Analysis Report, 2022 – 2030."

<sup>8</sup> ndp | analytics; Axxoim Consulting and Animalytix, LLC. 2019. US Animal Health Market Insights: Mid-Year Update; Animalytix, LLC. 2021. Mid-Year Market Update.



The animal health industry serves companion animals including domestic pets, service animals, and horses as well as food-producing animals such as cattle, pigs, and chickens. Approximately 63% of animal health sales in the U.S. are products for companion animal products and about 37% are for food-producing animals. Over 37% of sales are pharmaceuticals, followed by flea and tick medicines and other parasiticides (32%), and vaccines (15%). The remaining 16% includes nutraceuticals and other products. (Figure 2)

Figure 2.  
**U.S. Animal Health Sales<sup>9</sup>**



### Animal Health Products for Companion & Food-Producing Animals

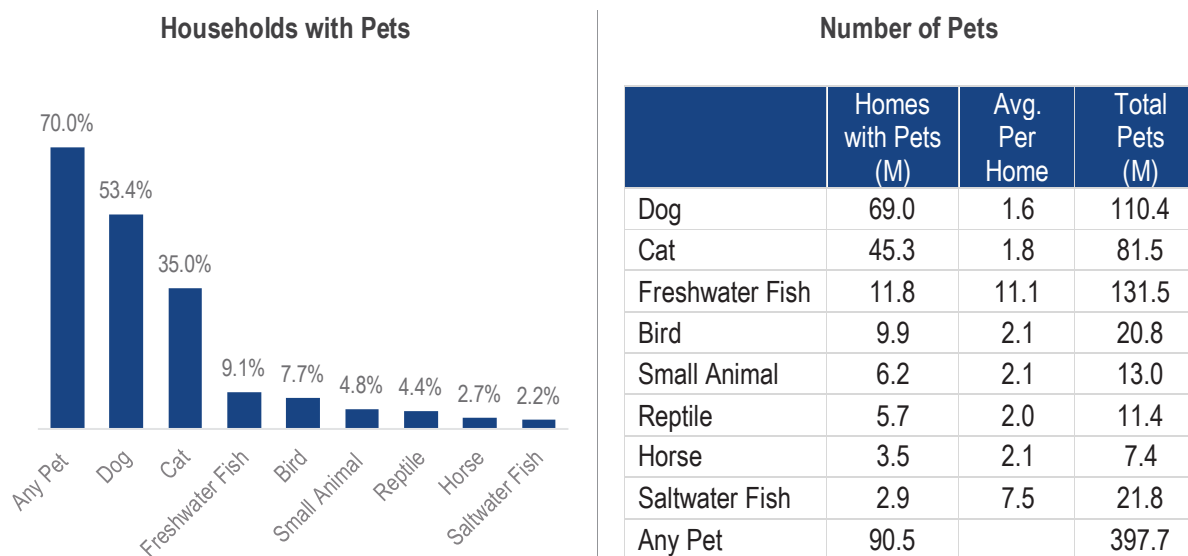
The animal health industry creates innovative products to support all types of animals across the country. American households are home to nearly 400 million pets, including 192 million dogs and cats. Additionally, American farmers and ranchers raise over 10 billion food animals, including cattle, hogs, chickens, sheep, and other animals.

#### *Companion Animals*

Companion animals are domestic pets, such cats, dogs, birds, horses, and other animals. This category also includes service and therapy animals, such as Seeing Eye dogs, and performance animals, like racehorses. In 2021, approximately 70% of U.S. households owned at least one pet, with over half owning a dog and more than one-third owning a cat. In total, there are 397.7 million pets in the U.S., including 110.4 million dogs and 81.5 million cats. (Figure 3)

<sup>9</sup> ndp | analytics; Axxiom Consulting and Animateix, LLC. 2019. US Animal Health Market Insights: Mid-Year Update.

Figure 3.  
**U.S. Pet Ownership, 2021<sup>10</sup>**



Pet owners rely on routine veterinary care and animal health products to keep their pets healthy and prevent diseases like rabies and avoid exposure to disease carriers including fleas and ticks. Animal health is a priority for most pet owners because they view pets as more than just animals. Almost all dog and cat owners consider their pets as members of their family (95%) and about 86% say they would pay whatever it takes if their pet needed extensive veterinary care.<sup>11</sup> This mindset is reflected in consumer spending on pet products and services.

According to the Bureau of Labor Statistics, Americans spent nearly \$103 billion on their pets in 2021.<sup>12</sup> Thus, on average, the 90.5 million pet-owning households across the country each spent \$1,137 on their pets, including \$393 on veterinary services such as routine visits, surgery, treatments, and vaccinations, and \$263 on pet purchases and supplies, including medicine. (Table 1)

### **Pets Are Family**

**95%**

*Of dog and cat owners feel their pets are like part of the family*

**86%**

*Of dog and cat owners say they would pay for extensive veterinary care*

<sup>10</sup> American Pet Products Association. 2022. "Pet Industry Market Size, Trends & Ownership Statistics"; American Veterinary Medical Association. "U.S. pet ownership statistics."

<sup>11</sup> Human Animal Bond Research Institute. 2022. "New Research Confirms the Strong Bond Between People and Pets is a Global Phenomenon, 95% Worldwide Say Pets Are Family." January 16.

<sup>12</sup> Bureau of Labor Statistics. Consumer Expenditures Survey, 2021.

Table 1.  
**U.S. Household Spending on Pets, 2021<sup>13</sup>**

	Total Expenditures (\$M)	Average Expenditure Per Household	Share
Vet services	\$35,546	\$393	35%
Pet food	\$34,480	\$381	33%
Pet purchase, supplies, medicine	\$23,807	\$263	23%
Pet services	\$9,102	\$101	9%
<b>Total</b>	<b>\$102,932</b>	<b>\$1,137</b>	<b>100%</b>

As pet owners look for solutions to increase the length and quality of life for their pets, animal health companies work to develop and commercialize cutting edge treatments for pet health problems, such as arthritis and cancer. Indeed, households spend significant amounts of money over their pets' lifetime on daily necessities, healthcare, and other supplies. Recent research found that over a 15-year lifetime of a pet, owners spend at least \$19,893 to care for a dog and \$15,055 for a cat.<sup>14</sup> During this period, health care related expenditures, including medications, parasite control, vaccinations, checkups, and dental care are estimated to be at least \$8,010 for a dog and \$5,610 for a cat.<sup>15</sup> These investments treat and prevent diseases in pets and keep families safe by preventing the transfer of disease from pets to humans.

### *Food-Producing Animals*

Agriculture is an important sector of the U.S. economy. In 2020, agriculture and food related industries directly contributed over \$1 trillion to the economy and employed nearly 20 million workers.<sup>16</sup> Family and commercial farms across the nation raise cattle, pigs, sheep, chickens, and other animals for consumption, including meat and dairy products. Currently, U.S farmers and ranchers raise over 10 billion animals, valued at \$167 billion. Farmers and ranchers rely on animal health products to keep food-producing animals safe and healthy for human consumption. (Table 2)

<sup>13</sup> Bureau of Labor Statistics. Consumer Expenditure Survey, 2021.

<sup>14</sup> Synchrony. 2022. "Lifetime of Care Study."

<sup>15</sup> Synchrony. 2022. "Lifetime of Care Study."

<sup>16</sup> U.S. Department of Agriculture. 2022. "Ag and Food Sectors and the Economy." Economic Research Service.

Table 2.  
**Number of Food-Producing Animals in the United States<sup>17</sup>**

	Inventory (M)	Value per Head (\$)	Value Total (\$M)
Cattle and Calves	93.8	1,031.0	\$96,697.0
Poultry	9,869.9	4.1	\$40,415.2
Hogs & Pigs	77.3	373.5	\$28,872.9
Sheep & Lambs	5.2	204.0	\$1,054.7
<b>Total</b>	<b>10,046.2</b>	<b>16.6</b>	<b>\$167,039.8</b>

Industry and government agencies work closely together to have procedures in place to prevent and mitigate disease outbreaks in food-producing animals. Importantly, continued innovation by animal health companies helps to substantially reduce losses from disease, illness, or other causes of premature death in food animals. For example, in 2021 an experimental vaccine was developed to treat Johne's disease, a chronic intestinal disorder that affects cattle, which costs ranchers over \$220 million in losses annually.<sup>18</sup> Other animals, including sheep and goats, are also affected by the disease. A year before earlier, in 2020, USDA approved a vaccine to prevent the tick-borne disease epizootic bovine abortion (EBA). The EBA vaccine reduces devastating calf losses worth of \$10 million per year in California, Oregon, and Nevada, alone.<sup>19</sup> In addition, vaccines to combat foot and mouth disease (FMD) in cattle are currently available and manufacturers continue to innovate to develop improved products.<sup>20</sup> Losses from FMD outbreaks could be as high as \$188 billion, but, with an emergency vaccine strategy, they can be reduced to \$56 billion.<sup>21</sup>

### Vaccines Protect the Food Supply & Reduce Losses

**\$132 B**

*Cost savings with an emergency FMD vaccine strategy, reducing losses from \$188 billion to \$56 billion*

**\$220 M**

*Potential annual losses prevented from a vaccine to treat Johne's Disease in cattle and other animals*

<sup>17</sup> U.S. Department of Agriculture. 2022. [Poultry – Production and Value](#). Apr 28; U.S. Department of Agriculture. 2022. [Chicken and Eggs Annual Summary](#). Feb 22; U.S. Department of Agriculture. 2022. [Meat Animal Production, Disposition, and Income Annual Summary](#). Apr 28; U.S. Department of Agriculture. 2022. [Sheep and Goats](#). Jan 31; U.S. Department of Agriculture. 2020. [Agricultural Statistics Annual](#). May 4; All figures are 2021 statistics except value per head for cattle (2019) and sheep and lambs (2018) which are used to derive total value for those categories.

<sup>18</sup> U.S. Department of Agriculture. 2021. [Scientists Serve Up Vaccine Cocktail for Protecting Cattle from Disease](#). Jun 24.

<sup>19</sup> Wood, Trina. 2020. [Vaccine Now Available for Cattle Producers to Fight Foothill Abortion](#). UC Davis Veterinary Medicine. Sept 3.

<sup>20</sup> Hardham, John M., et al. 2020. [Novel Foot-and-Mouth Disease Vaccine Platform: Formulations for Safe and DIVA-Compatible FMD Vaccines with Improved Potency](#). Frontier Vet. Sci. Sep 25.

<sup>21</sup> Schroeder, Ted, et al. 2015. "Economic Impact of Alternative FMD Emergency Vaccination Strategies in the Midwestern United States." Journal of Agricultural and Applied Economics, 47(1) 47–76.



## ECONOMIC IMPACTS OF THE U.S. ANIMAL HEALTH INDUSTRY

The economic impact of the animal health industry includes the direct impact of animal health manufacturers that operate in the U.S., as well as the economic activity generated by industries that rely on animals, including animal production, meat and dairy product manufacturing, veterinary services, and pet services.

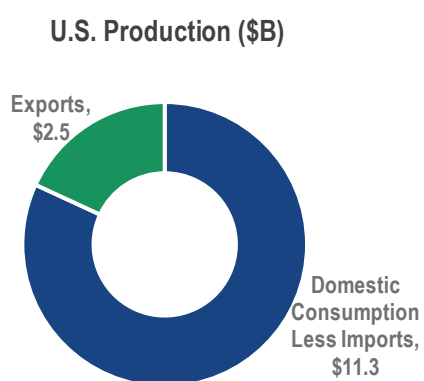
### Direct Impact of the Animal Health Industry

As subset of the biopharmaceutical industry, animal health is among the most innovative industries in the United States. Innovative industries invest in R&D and protect their intellectual property (IP) with patents, trademarks, and copyrights. Evidence shows that IP-intensive manufacturing industries, such as animal health, outperform their counterparts who invest less in R&D across all key economic indicators.<sup>22</sup>

The industry's direct economic contribution is from developing medicines sold at home and abroad. In 2021, the U.S. animal health industry's production totaled \$13.8 billion, of which \$11.3 billion was sold domestically (total U.S. market, \$13.0 billion, minus \$1.7 billion of imports) and \$2.5 billion was exported. (Figure 4)

Animal health companies hire workers to maintain and operate manufacturing plants, conduct R&D, and manage corporate offices. In 2021, the industry employed 24,094 workers across the U.S. and paid over \$1.6 billion in wages. In the same year, animal health companies invested over \$1 billion in R&D to create innovative products that treat or prevent diseases in animals. Their tax contribution was over \$1.5 billion. (Figure 4)

Figure 4.  
**U.S. Animal Health Industry Production, 2021<sup>23</sup>**



### Key Economic Indicators

Jobs	24,094
Wages (\$M)	\$1,648.8
Output (\$M)	\$13,797.5
Exports (\$M)	\$2,500.0
Research & Development (\$M)	\$1,012.3
Taxes (\$M)	\$1,549.7

<sup>22</sup> ndp | analytics; Pham, Nam. 2021. "IP-Intensive Industries drive Economic Growth." ndp | analytics.

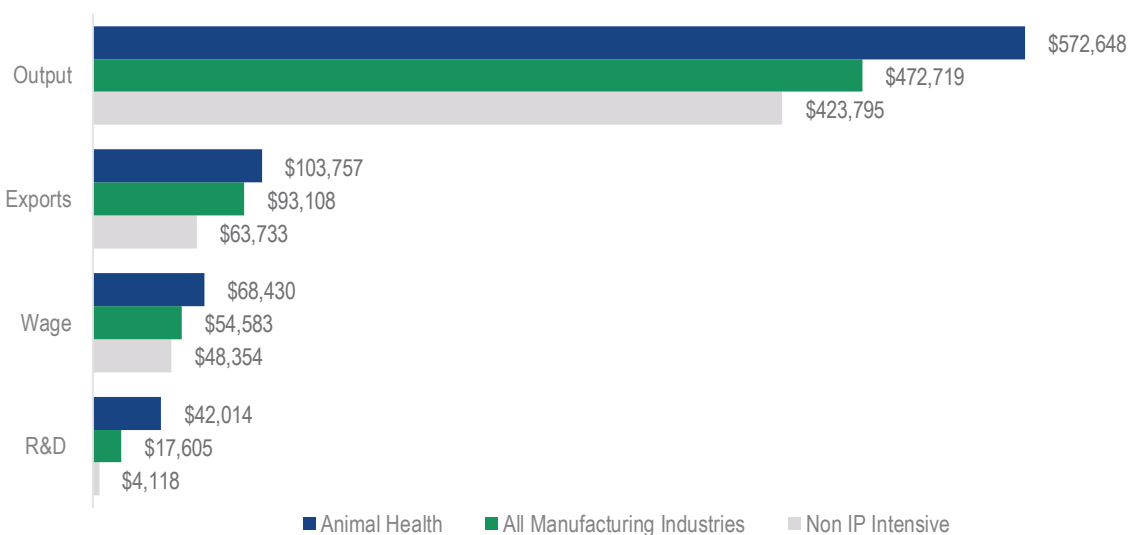
<sup>23</sup> The direct economic impact of the animal health industry is estimated using total production (U.S. market minus imports plus exports), official industry data, and publicly available financial indicators of animal health companies.

Animal health manufacturers invest an average of 7.3% of sales in R&D, more than double the overall U.S. manufacturing average of 3.4%.<sup>24</sup> Like other IP-intensive industries, the economic performance of animal health manufacturers far exceeds non-IP-intensive industries and the average for manufacturing industries overall. In 2021, animal health manufacturers invested \$42,014 in R&D per worker compared to \$4,118 in the non-IP-intensive industries and \$17,605 in the total manufacturing sector. Animal health workers earned over a 41% premium than their counterparts in the non-IP intensive industries (\$68,430 per year compared to \$48,354). The productivity of animal health manufacturers was 35% higher than in non-IP-intensive industries (\$572,648 gross output per worker per year compared to \$423,795). Exports per worker in the animal health industry were nearly 63% higher than that in the non-IP-intensive industries (\$103,757 per worker per year compared to \$63,733). (Figure 5)

The animal health industry's focus on innovation and investment in R&D makes the U.S. a global leader in developing and producing animal health products. As a result, there is strong demand for U.S. products in foreign markets. In 2021, U.S. animal health exports totaled more than \$2.5 billion. This production supports 4,366 direct jobs or 18.1% of all animal health manufacturing jobs. While the U.S. manufacturing sector experiences trade deficits, the U.S. animal health manufacturers realize a trade surplus of nearly \$800 million.

Figure 5.  
**Animal Health Industry vs. Manufacturing Sector Overall<sup>25</sup>**

Value Per Worker

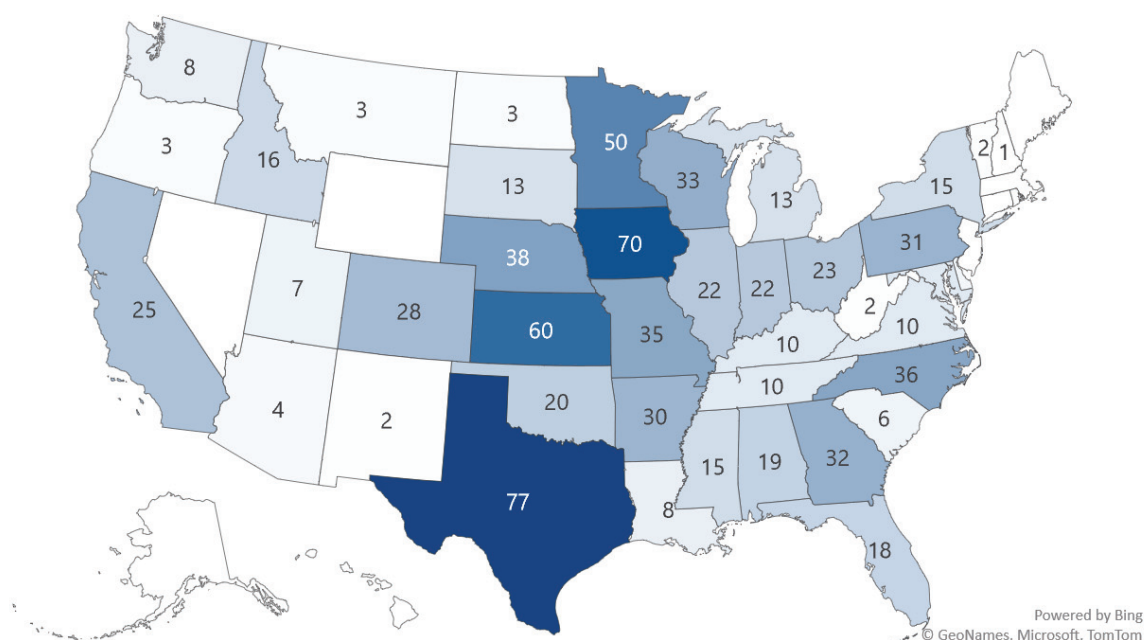


<sup>24</sup> Pham, Nam. 2021. "IP-Intensive Industries drive Economic Growth." ndp | analytics; Animal health estimate based on publicly available data from animal health companies.

<sup>25</sup> Pham, Nam. 2021. "IP-Intensive Industries drive Economic Growth." ndp | analytics; Author's estimates.

Animal health manufacturers operate across the U.S. and serve as suppliers to companies that manufacture medicated animal feed. As of August 2022, there were 146 facilities producing animal health products of which 68% manufacture the products, 34% are involved in labeling, 27% package products for distribution, and 22% conduct analysis. In addition to these operations, another 691 facilities use animal health products to manufacture medicated animal feed. In total, these 837 facilities operate across 41 states with the largest presence in the Mid-West and the South. (Figure 6)

Figure 6.  
**Animal Health Facilities Operate Across the United States<sup>26</sup>**



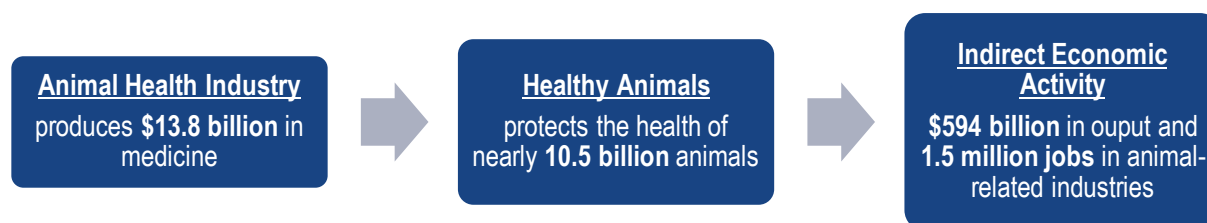
### Indirect Economic Impact of the Animal Health Industry

In addition to industry’s direct economic contributions, animal health products support and enable other industries and enhance the quality of life for millions of Americans. Medicines and vaccines enable a robust and essential livestock industry by keeping food animals healthy and protecting the public from disease outbreaks. Healthy companion animals are the cornerstone of the animal services sector and provide physical and emotional benefits to their human owners. Animal health products are used daily to treat and prevent diseases in nearly 400 million pets and 10 billion food animals across the country. As a result, the industry supports more than \$594 billion in output and 1.5 million jobs in industries that rely on the health of companion and food-producing animals.<sup>27</sup> (Figure 7)

<sup>26</sup> FDA. Drug Establishment Current Registration Site; ndp | analytics.

<sup>27</sup> Industries include Veterinary services (NAICS 54194), animal production (NAICS 112), dairy product manufacturing (NAICS 3315), meat processing (NAICS 3316), and pet services (NAICS 81291).

Figure 7.  
**The Indirect Impact of the Animal Health Industry**



The total impact of the animal health industry includes U.S. industries that generate economic activity solely due to the existence of companion and food-producing animals as well as the medicines and vaccines that detect, protect, and treat disease. Four key industries that directly rely on companion and food-producing animals are animal production (NAICS 112), veterinary services (NAICS 54794), meat and dairy production (NAICS 3115-6), and pet services (NAICS 81291). (Table 3)

Table 3  
**Industries That Directly Rely on Animals & Animal Health Products**

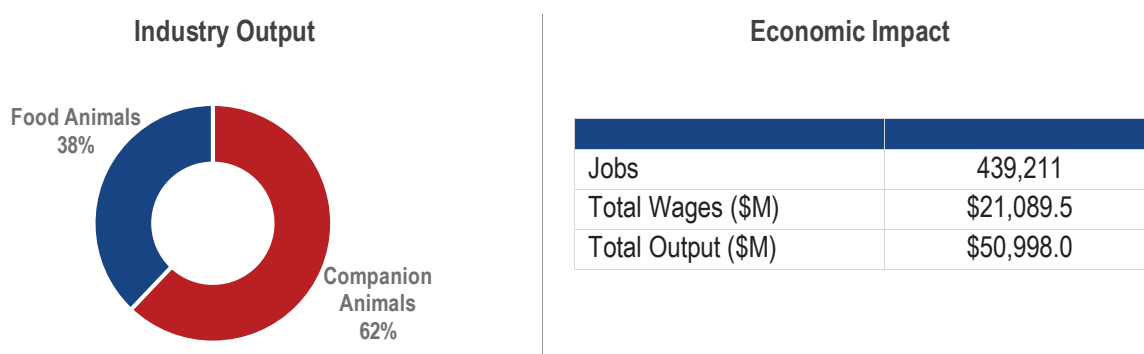
Animal Production	Meat and Dairy Production
<p>Animal production includes ranches, farms, and feedlots that raise, feed, or keep animals for eventual sale or food production. These businesses use animal health products to prevent or treat diseases in food-producing animals.</p>	<p>Meat and dairy production include businesses that process and package meat and dairy products. These manufacturers rely on healthy animals raised by farmers and ranchers to maximize production and ensure food safety.</p>
Veterinary Services	Pet Services
<p>Veterinary services provide routine and emergency care for companion and food-producing animals. Veterinarians and their staff examine an animal's health, diagnosis diseases, administer vaccines, prescribe treatment, and perform surgeries. They rely on animal health products to treat their patients.</p>	<p>Pet services include groomers, boarding facilities, and animal trainers that work with domestic pets or service animals. Pet services professionals rely on animal health products to ensure companion and service animals are free from disease, prevent the spread of disease to humans or other animals in their care.</p>

## Veterinary Services

Veterinary services play a key role in ensuring the health of food-producing and companion animals. Veterinarians and their support staff conduct routine exams, perform surgeries and other procedures, and diagnose illnesses and diseases. They rely on animal health products to ease pain, manage chronic conditions, and prevent and treat diseases.

In 2021, the U.S. veterinary services industry employed 439,211 workers and paid nearly \$21.1 billion in wages. The industry is primarily comprised of animal healthcare practitioners and technicians, including 109,470 veterinary technologists and technicians (25%), 90,560 veterinary assistants and laboratory animal caretakers (21%), 71,290 veterinarians (18%).<sup>28</sup> The remainder includes other technical, administrative, and support staff that assist with healthcare services and manage the businesses. The Census reported that the industry generated \$51.0 billion in output in 2020. Much of this output is generated from routine healthcare and emergency services for companion animals. In 2020, American households spent nearly \$31.6 billion on veterinary services for their pets, accounting for 62.1% of the industry's output. (Figure 8)

Figure 8.  
**U.S. Veterinary Service Output, 2020<sup>29</sup>**



## Animal Production

The farmers and ranchers involved in raising and keeping livestock use medicines to ensure the health of the food-producing animals, protect public health, and safeguard the food supply. The animal health industry, farmers and ranchers, food producers, and government agencies including USDA and FDA work together to maximize food safety and minimize the impact of a disease outbreak. The FDA, USDA, and EPA must approve pharmaceuticals, vaccines, and flea and tick products, respectively. The agencies routinely monitor and inspect animal health companies and food producers to ensure that medicines are produced safely and

<sup>28</sup> Bureau of Labor Statistics. Quarterly Census of Employment and Wages, 2021; Bureau of Labor Statistics. Occupational Employment Statistics, 2021.

<sup>29</sup> Bureau of Labor Statistics. Consumer Expenditure Survey 2020; Bureau of Labor Statistics. Quarterly Census of Employment and Wages, 2021; Census. Annual Services Survey, 2020.



used appropriately. The benefits of animal health products to production are substantial and are recognized by global organizations to be essential to food security and human health.<sup>30</sup>

The animal production industry is made up of commercial and family farmers and ranchers who raise and keep livestock. In 2020, farmers and ranchers generated nearly \$199 billion in output, raising cattle, pigs, chickens, and other animals. Beef cattle ranching and farming accounts for over \$90.3 billion of total animal production output (45.4%), followed by dairy cattle and milk production (20.9%), poultry and egg production (18.3%), and other animal production, such as hogs, pigs, sheep, goats, and others (15.4%).<sup>31</sup> (Table 4)

Table 4.  
**U.S. Animal Production Output, 2020<sup>32</sup>**

	Output (\$M)	Employment	Wages (\$M)
Beef cattle ranching and farming	\$90,350.0	55,589	\$3,212.1
Dairy cattle and milk production	\$41,543.0	104,386	\$3,476.9
Poultry and egg production	\$36,456.0	44,150	\$2,198.3
Other animal production	\$30,603.0	59,283	\$2,827.4
<b>Total</b>	<b>\$198,952.0</b>	<b>263,408</b>	<b>\$11,714.6</b>

### *Meat and Dairy Production*

Livestock raised by farmers and ranchers are used to produce meat and dairy products that are purchased by consumers in the U.S. and abroad. The meat and dairy industries are important contributors to the U.S. economy and supply consumers with healthy, safe, and affordable food. Together, these industries generate \$338.4 billion in output, directly support 673,968 jobs, and generate \$36.2 billion in wages. (Table 5)

<sup>30</sup> Food and Agriculture Organization of the United Nations. "Animal Health."

<sup>31</sup> Beef cattle ranching and farming (NAICS 11211) includes establishments where cattle are raised for beef and/or dairy cow replacements and cattle feedlots. Dairy cattle and milk production (NAICS 11212) includes establishments that primarily milk dairy cows. Poultry and egg production (NAICS 1123) includes establishments that raise chickens for table or egg production. Other production includes hog and pig farming (NAICS 1122), sheep farming (NAICS 1124), aquaculture (NAICS 1125), and other animal production (NAICS 1129).

<sup>32</sup> BEA. GDP by Industry Accounts. Gross Output by Industry, 2020; BLS. Quarterly Census of Employment and Wages, 2021.

Table 5.  
**U.S. Meat & Dairy Output, 2020<sup>33</sup>**

	Output (\$M)	Employment	Wages (\$M)
Meat Production	\$206,702.0	519,300	\$26,085.0
Dairy Production	\$131,704.0	154,668	\$10,129.0
<b>Total</b>	<b>\$338,406.0</b>	<b>673,968</b>	<b>\$36,214.0</b>

Foreign markets rely on U.S. meat and dairy exports. Unlike many manufacturing industries, both the meat and dairy production industries realized a combined \$17.0 billion trade surplus in 2021. Mexico and Canada are two of the U.S.'s largest export markets for meat and dairy products. Approximately 41.9% of U.S. meat exports go to Mexico (\$4.9 billion), Japan, (\$4.2 billion), and Canada (\$2.6 billion). Similarly, 44.1% of dairy exports go to Mexico (\$1.8 billion), Canada (\$0.9 billion), and China (\$0.7 billion). (Table 6)

Table 6.  
**U.S. Meat & Dairy Trade Surplus, 2021<sup>34</sup>**

	Exports (\$M)	Imports (\$M)	Balance (\$M)
Meat Production	\$28,061.9	\$14,972.5	\$13,089.4
Dairy Production	\$7,817.7	\$3,917.5	\$3,900.1
<b>Total</b>	<b>\$35,879.6</b>	<b>\$18,890.1</b>	<b>\$16,989.5</b>

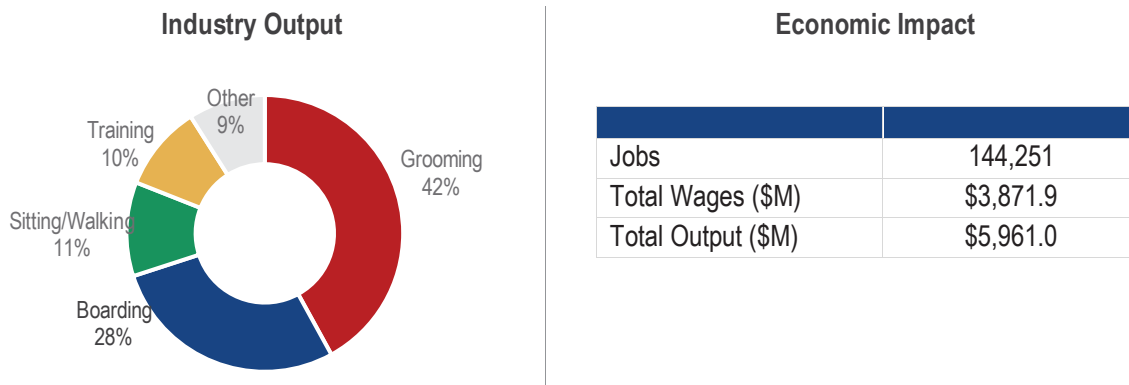
### *Pet Services*

Pet services include businesses such as animal trainers, groomers, boarding facilities, and other support services. Animal health products are critical to the operations of this industry. In 2021, the pet services industry employed 144,251 workers and paid \$3.9 billion in wages. In 2020, it generated nearly \$6.0 billion in revenue. Nearly 42% of pet services is related to grooming, followed by boarding (28%), pet sitting and walking (11%), training (10%), and other services (9%). While it only comprises a portion of total output, training is a vital component of pet services. Each year, thousands of companion animals are trained to support human health and safety, including emotional support, search and rescue, law and drug enforcement, and assistance for the blind and disabled. (Figure 9)

<sup>33</sup> BEA. GDP by Industry Accounts, 2020. Gross Output by Industry; BLS. Quarterly Census of Employment and Wages, 2021.

<sup>34</sup> Census. USA Trade. Foreign Trade Statistics, 2021.

Figure 9.  
**U.S. Pet Services Industry Output, 2020<sup>35</sup>**



### Total Impact of the Animal Health Industry

The direct economic impact of the U.S. animal health industry plus the impact of industries that depend on animals is substantial. In total, these industries generated \$608.1 billion in output, created over 1.5 million jobs, and paid \$74.5 billion in wages in 2021. For a comparison purpose, these five industries combined account for nearly 2% of total U.S. output and employ about the same number of workers as the entire state of Iowa. (Table 7)

Table 7.  
**Total Economic Impact of the Animal Health Industry in the United States<sup>36</sup>**

	Output (\$M)	Employment	Wages (\$M)
<b>Animal Health</b>	<b>\$13,797.5</b>	<b>24,094</b>	<b>\$1,648.8</b>
<b>Related Industries</b>	<b>\$594,317.0</b>	<b>1,520,838</b>	<b>\$72,889.9</b>
Veterinary Services	\$50,998.0	439,211	\$21,089.5
Animal Production	\$198,952.0	263,408	\$11,714.6
Meat and Dairy Production	\$338,406.0	673,968	\$36,214.0
Pet Services	\$5,961.0	144,251	\$3,871.9
<b>Total</b>	<b>\$608,114.5</b>	<b>1,544,932</b>	<b>\$74,538.7</b>

<sup>35</sup> Bureau of Labor Statistics. Quarterly Census of Employment and Wages, 2021; Census. Annual Services Survey, 2021; Hanson, Mel. 2022. "Pet Industry Statistics." Spots.com Jan 23.

<sup>36</sup> Bureau of Economic Analysis. GDP by Industry Accounts. Gross Output by Industry, 2020; Bureau of Labor Statistics. Quarterly Census of Employment and Wages, 2021; Census Annual Services Survey, 2020.

## THE SOCIAL BENEFITS OF THE ANIMAL HEALTH INDUSTRY

The animal health industry's ability to keep animals safe and healthy has important social impacts. Animal health products improve public health by ensuring food animals are healthy and dairy and meat products are safe for consumers. Furthermore, companion animals have the unique ability to improve mental and physical health of individuals and families, resulting in a positive impact on communities; this was especially critical during the peak of the COVID-19 pandemic. Finally, discoveries and breakthroughs in animal health inform research and development to advance human health.

### *Public Health*

Animal medicines, including vaccines, are critical for not only keeping animals healthy but also preventing the transmission of disease from animals to humans. According to CDC: "Scientists estimate that more than 6 out of every 10 known infectious diseases in people can be spread from animals, and 3 out of every 4 new or emerging infectious diseases in people come from animals."<sup>37</sup>

Animal health products including, vaccines and flea and tick prevention medicines, reduce the risk of disease and illness in humans. For example, pets receive vaccines for rabies, a fatal disease caused by a virus that is transmitted via animal bites. Humans are not routinely vaccinated against rabies, but the vaccine used for pets creates a protective barrier since they are more likely to come into contact with wildlife than humans. Globally, the virus still causes about 59,000 deaths worldwide every year.<sup>38</sup> In contrast, with widespread pet vaccinations, public health, and available treatment, only one or two rabies deaths occur in the U.S. annually.<sup>39</sup>

### *Food Safety and Availability*

The U.S. food supply is among the safest in the world; industry, government, and other stakeholders collaborate to monitor, address, prevent foodborne illnesses and protect the health of food-producing animals. Animal health products improve food safety and availability by enhancing the ability to detect diseases and reducing the prevalence of harmful pathogens like E. coli, campylobacter, and salmonella. A safe and reliable food supply, especially for everyday staples like meat and dairy products, is essential to ensuring food security for American households.

In the U.S., advanced vaccines, medicines, and diagnostic tools are used to identify, prevent, cure, and even eradicate disease in food animals. Highly effective vaccination programs protect humans from diseases spread through contaminated food while innovative medicines help treat diseases as they arise. Diagnostic

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### **RABIES VACCINE FOR PETS PROTECTS HUMANS**

# 59,000

*Rabies deaths occur worldwide annually*

# Less than 2

*Deaths occur in the U.S. due to rabies each year, much in part due to widespread vaccination of pets*

CDC (2020)

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<sup>37</sup> CDC. 2021. "Zoonotic Diseases."

<sup>38</sup> CDC. 2022. "[CDC Features: Take a Bite Out of Rabies!](#)" May 4.

<sup>39</sup> CDC. 2020. "Rabies in the U.S." April 6.

tools help to identify infected animals and reduce the spread of diseases. Several examples of the impact vaccines in stopping and controlling the spread of disease include Brucellosis, E. coli, Rinderpest, and Tuberculosis. (Table 8)

Table 8.

**Animal Health Products Protect Humans & Improve Food Safety and Availability**

Brucellosis	E.coli	Tuberculosis
<p>Brucellosis is a bacterial disease transmitted by ingesting infected animal products. It is a major threat to human health worldwide. <b>Animal vaccinations provide a protective barrier since there is no approved human vaccine.</b><sup>40</sup> The vaccines also protect the food supply. <b>The National Brucellosis Eradication Program has reduced economic losses caused by lower milk production, animal death, and reduced breeding from \$400 million in 1952 to under \$1 million today.</b> Without these efforts, the annual cost of producing beef and milk would increase by \$80 million.<sup>41</sup></p>	<p>E. Coli is a foodborne illness that can come from meat, dairy products, vegetables, and other food sources. In 2009, the first E. Coli vaccine was approved for cattle. <b>This vaccine is capable of reducing instances of E. Coli cases in humans by 85%.</b><sup>42</sup></p> <hr/> <p><b>Rinderpest</b></p> <p>Rinderpest, a disease similar to measles, historically has had devastating impacts on the cattle population resulting in insufficient food supply. However, <b>due to innovations in vaccines and large-scale interventions, the disease is eradicated.</b></p>	<p>Bovine tuberculosis (“TB”) was a common concern in the early 1900s and was one of the most prevalent diseases in livestock. TB eradication efforts are considered a significant public health achievement. Since its inception in 1917, the National Tuberculosis Eradication Program supports animal producers in detecting, testing, and taking action. These efforts have resulted in significant impact on food production. According to USDA, <b>the benefits of this program are estimated at 12 times the cost due to decreased slaughter condemnations and decreased human infection.</b></p>

<sup>40</sup> University of Iowa, Center for Food Security and Public Health. Brucellosis Factsheet, July 2009.

<sup>41</sup> U.S. Department of Agriculture. 2020. “National Brucellosis Eradication Program.” June 2.

<sup>42</sup> Matthews, Louis, et al. 2013. “Predicting the public health benefit of vaccinating cattle against Escherichia coli O157.” Proceedings of the National Academy of Sciences of the United States of America (PNAS) V110, 40.



The ability of farmers and ranchers to keep food-producing animals healthy and prevent disease increases the amount of food available and improves the affordability of meat and dairy products for consumers in the United States. This is especially important for consumers because of our reliance on animal products in our everyday lives. In 2021, Americans consumed an estimated 36.9 billion pounds of red meat, 26.4 billion pounds of poultry, and 12.5 billion pounds of eggs. (Figure 10)

USDA and international organizations emphasize the importance of animal health to maintaining adequate food supply and protecting human health, especially in light of ongoing challenges including transboundary disease, increased demand, and globalization.<sup>43,44</sup> Animal health products directly address potentially devastating diseases and protect the food supply for Americans and the global population.

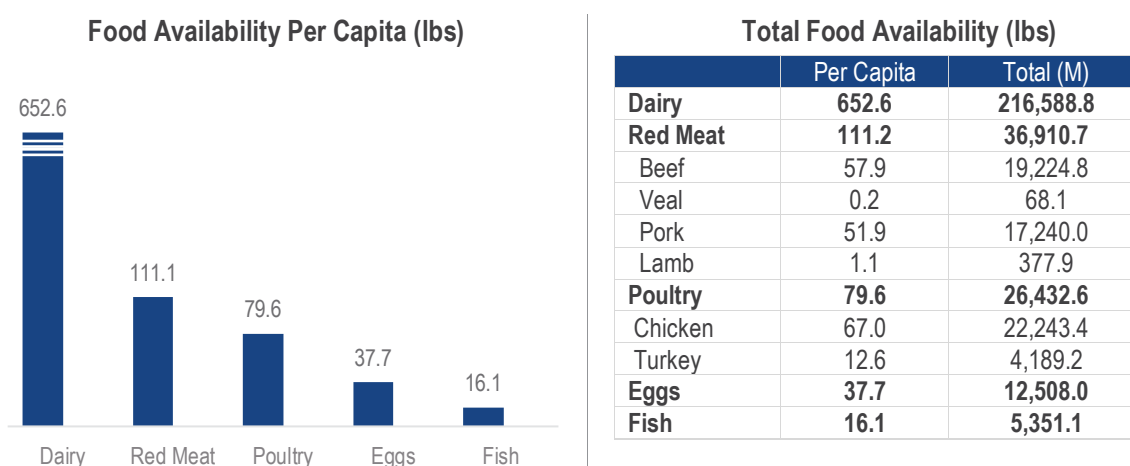
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***“Animal disease is one of the greatest threats to animal agriculture. Recent events in the United States and abroad have made us aware of how animal diseases can affect the food supply, human health, and national economies.”***

USDA (2022)

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Figure 10.  
**Annual U.S. Food Consumption<sup>45</sup>**



<sup>43</sup>Garcia, Sara, N., Bennie I. Osburn, and Michele T. Jay-Russell. 2020. “One Health for Food Safety, Food Security, and Sustainable Food Production.” *Front. Sustain. Food Syst.* 4:1.

<sup>44</sup> USDA. 2022. “Animal Health.”

<sup>45</sup> USDA. Food Availability Database; Census. Population Estimates.

## Companionship & Communities

Companion animals have proven to have a positive impact on individuals and communities. Before the COVID-19 pandemic, research had shown that pets improve the lives of their owners by reducing anxiety, depression, and PTSD, improving coping and social skills, and positively impacting development.<sup>46</sup> Studies have also shown that pets may help their owners live longer as a result of improved cardiovascular health and increased physical activity.<sup>47</sup> Additionally, pet owners have been found to be more likely to get to know people in their neighborhood than those without pets and to get more involved in their communities.<sup>48</sup>

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***“Pet ownership and human-animal interaction can lead to improved heart health through supporting a healthy lifestyle, preventing heart disease, and facilitating healing following a cardiovascular event.”***

HABRI (2021)

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The COVID-19 pandemic increased the prevalence of individuals experiencing stress, anxiety, and depression. Recent research has reinforced the value of pets to individuals and families, especially during difficult times. Recent research has found that companion animals decreased feelings of loneliness in 66% of surveyed pet owners. Other benefits of pets during the pandemic includes decreased feeling of isolation (64%), decreased anxiety (58%), decreased depression (57%) and increased sense of purpose (54%). (Figure 11)

Figure 11.  
**Animal Companionship and Mental Health During COVID-19<sup>49</sup>**



<sup>46</sup> Human Animal Bond Research Institute (HABRI). 2022. “Mental Health Conditions.”

<sup>47</sup> Human Animal Bond Research Institute (HABRI). 2021. “The Heart Health Benefits of the Human-Animal Bond.”

<sup>48</sup> Wood, Lisa, et al. 2016. “The Pet Factor - Companion Animals as a Conduit for Getting to Know People, Friendship Formation and Social Support.” PLOS. April 29.

<sup>49</sup> Kogan, Lori R., et al. 2021. “The Psychosocial Influence of Companion Animals on Positive and Negative Affect during the COVID-19 Pandemic.” Animals (Basel) Jul 11 (7).

### *Impact on Human Health Research*

Animal health companies invest millions of dollars in R&D. Discoveries and advancements in animal health can also be applied to human health. Animal health research can contribute significantly to human vaccine development. Findings from animal research bridge the gap between results obtained in discovery phases of human health research and advanced research phases that lead to clinical trials. The discovery phase often focuses on research findings in rodents, which are not directly translatable to humans. Since companion and food-producing animals have more similar physical attributes to humans than rodents, discoveries in animal health research can be applied to human health, resulting in important advancements in medicines and vaccines for humans.<sup>50</sup> Some areas where animal health research can be leveraged to expedite research and development for human health include heart disease, cancer, allergies, and arthritis.

## **CONCLUSION**

Animal health products are indispensable to the American economy and communities in direct and indirect ways. Economically, the impact of the animal health industry goes beyond manufacturing. Related industries such as veterinary services, animal production, food production, and pet services all rely on animals that stay healthy because of animal medicines. Although the \$13.8 billion animal health industry is relatively small, it generates a total cumulative benefit of \$608 billion to the economy. This output creates over 1.5 million jobs and \$74.5 billion in wages to support nearly 10.5 billion companion and food-producing animals across the country.

The social benefits of animal health products are far reaching. Importantly, animal health products improve public health and food safety. Vaccines prevent and cure diseases in food-producing animals, improving the quality and quantity of meat and dairy products. They have also helped to protect animals and humans from fatal diseases carried by wild animals such as rabies and pests such as ticks and fleas. Animal health products allow Americans to safely interact with pets and raise them as part of their family. As a result, pet owners are able to realize many mental and physical health benefits associated with companion animals. Improvements in human health and quality of life due to interactions with animals are invaluable.

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<sup>50</sup> Meeusen, Els, et al. 2007. "Current Status of Veterinary Vaccines. American Society for Microbiology." V.20 (3). 489-510.

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## Appendices

1. Households with Pets, and Number of Cats and Dogs by State, 2021
2. Household Expenditures on Pet Vaccines and Supplies, incl. Medicine, by State, 2021
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4. Veterinary Industry Statistics by State, 2020-21
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## Appendix 1.

**Households with Pets, and Number of Cats and Dogs by State, 2021<sup>51</sup>**

State	Number of Households with Any Pets	Total Number of Cats	Total Number of Dogs
Alabama	1,321,953	1,191,072	1,612,636
Alaska	178,621	160,937	217,898
Arizona	1,850,401	1,667,201	2,257,285
Arkansas	819,381	738,258	999,554
California	9,172,180	8,264,083	11,189,046
Colorado	1,496,181	1,348,051	1,825,176
Connecticut	969,806	873,790	1,183,056
Delaware	259,667	233,959	316,765
District of Columbia	201,815	181,834	246,192
Florida	5,551,919	5,002,248	6,772,728
Georgia	2,681,185	2,415,733	3,270,749
Hawaii	327,552	295,123	399,578
Idaho	454,509	409,510	554,451
Illinois	3,418,843	3,080,358	4,170,610
Indiana	1,821,939	1,641,557	2,222,564
Iowa	891,759	803,470	1,087,847
Kansas	799,390	720,246	975,167
Kentucky	1,223,637	1,102,490	1,492,702
Louisiana	1,226,369	1,104,952	1,496,035
Maine	398,686	359,214	486,353
Maryland	1,561,369	1,406,785	1,904,698
Massachusetts	1,852,886	1,669,440	2,260,316
Michigan	2,786,286	2,510,428	3,398,961
Minnesota	1,545,592	1,392,569	1,885,451
Mississippi	781,654	704,266	953,532
Missouri	1,708,148	1,539,032	2,083,752
Montana	305,234	275,014	372,351
Nebraska	536,664	483,531	654,671
Nevada	791,008	712,694	964,942
New Hampshire	377,381	340,018	460,363
New Jersey	2,290,438	2,063,672	2,794,081
New Mexico	554,929	499,988	676,951

<sup>51</sup> American Pet Products Association. 2022. "Pet Industry Market Size, Trends & Ownership Statistics."; American Veterinary Medical Association. "U.S. pet ownership statistics." Census. American Community Survey.

State (Continued)	Number of Households with Any Pets	Total Number of Cats	Total Number of Dogs
New York	5,192,057	4,678,014	6,333,736
North Carolina	2,822,114	2,542,709	3,442,668
North Dakota	224,611	202,373	274,001
Ohio	3,302,058	2,975,136	4,028,146
Oklahoma	1,045,498	941,988	1,275,392
Oregon	1,149,805	1,035,968	1,402,635
Pennsylvania	3,574,621	3,220,714	4,360,642
Rhode Island	290,311	261,569	354,147
South Carolina	1,373,037	1,237,098	1,674,953
South Dakota	243,515	219,405	297,061
Tennessee	1,847,619	1,664,694	2,253,890
Texas	6,934,249	6,247,720	8,459,018
Utah	702,342	632,806	856,779
Vermont	183,996	165,780	224,455
Virginia	2,228,885	2,008,213	2,718,993
Washington	2,034,075	1,832,691	2,481,347
West Virginia	513,965	463,079	626,980
Wisconsin	1,664,555	1,499,754	2,030,573
Wyoming	163,262	147,098	199,161

## Appendix 2.

**Household Expenditures on Pet Healthcare and Supplies, incl. Medicine, by State, 2021<sup>52</sup>**

State	Households with Pets	Vet Services (\$M)	Pet Purchase, Supplies & Medicine (\$M)	Total Costs (\$M)
Alabama	1,321,953	\$519.2	\$347.7	\$867.0
Alaska	178,621	\$70.2	\$47.0	\$117.1
Arizona	1,850,401	\$726.8	\$486.8	\$1,213.5
Arkansas	819,381	\$321.8	\$215.5	\$537.4
California	9,172,180	\$3,602.6	\$2,412.8	\$6,015.4
Colorado	1,496,181	\$587.7	\$393.6	\$981.2
Connecticut	969,806	\$380.9	\$255.1	\$636.0
Delaware	259,667	\$102.0	\$68.3	\$170.3
District of Columbia	201,815	\$79.3	\$53.1	\$132.4
Florida	5,551,919	\$2,180.6	\$1,460.5	\$3,641.1
Georgia	2,681,185	\$1,053.1	\$705.3	\$1,758.4
Hawaii	327,552	\$128.7	\$86.2	\$214.8
Idaho	454,509	\$178.5	\$119.6	\$298.1
Illinois	3,418,843	\$1,342.8	\$899.3	\$2,242.2
Indiana	1,821,939	\$715.6	\$479.3	\$1,194.9
Iowa	891,759	\$350.3	\$234.6	\$584.8
Kansas	799,390	\$314.0	\$210.3	\$524.3
Kentucky	1,223,637	\$480.6	\$321.9	\$802.5
Louisiana	1,226,369	\$481.7	\$322.6	\$804.3
Maine	398,686	\$156.6	\$104.9	\$261.5
Maryland	1,561,369	\$613.3	\$410.7	\$1,024.0
Massachusetts	1,852,886	\$727.8	\$487.4	\$1,215.2
Michigan	2,786,286	\$1,094.4	\$733.0	\$1,827.3
Minnesota	1,545,592	\$607.1	\$406.6	\$1,013.6
Mississippi	781,654	\$307.0	\$205.6	\$512.6
Missouri	1,708,148	\$670.9	\$449.3	\$1,120.2
Montana	305,234	\$119.9	\$80.3	\$200.2
Nebraska	536,664	\$210.8	\$141.2	\$352.0
Nevada	791,008	\$310.7	\$208.1	\$518.8
New Hampshire	377,381	\$148.2	\$99.3	\$247.5
New Jersey	2,290,438	\$899.6	\$602.5	\$1,502.1

<sup>52</sup> BLS. Consumer Expenditures Survey; Census. American Community Survey.

State (Continued)	Households with Pets	Vet Services (\$M)	Pet Purchase, Supplies & Medicine (\$M)	Total Costs (\$M)
New Mexico	554,929	\$218.0	\$146.0	\$363.9
New York	5,192,057	\$2,039.3	\$1,365.8	\$3,405.1
North Carolina	2,822,114	\$1,108.4	\$742.4	\$1,850.8
North Dakota	224,611	\$88.2	\$59.1	\$147.3
Ohio	3,302,058	\$1,296.9	\$868.6	\$2,165.6
Oklahoma	1,045,498	\$410.6	\$275.0	\$685.7
Oregon	1,149,805	\$451.6	\$302.5	\$754.1
Pennsylvania	3,574,621	\$1,404.0	\$940.3	\$2,344.3
Rhode Island	290,311	\$114.0	\$76.4	\$190.4
South Carolina	1,373,037	\$539.3	\$361.2	\$900.5
South Dakota	243,515	\$95.6	\$64.1	\$159.7
Tennessee	1,847,619	\$725.7	\$486.0	\$1,211.7
Texas	6,934,249	\$2,723.6	\$1,824.1	\$4,547.7
Utah	702,342	\$275.9	\$184.8	\$460.6
Vermont	183,996	\$72.3	\$48.4	\$120.7
Virginia	2,228,885	\$875.4	\$586.3	\$1,461.8
Washington	2,034,075	\$798.9	\$535.1	\$1,334.0
West Virginia	513,965	\$201.9	\$135.2	\$337.1
Wisconsin	1,664,555	\$653.8	\$437.9	\$1,091.7
Wyoming	163,262	\$64.1	\$42.9	\$107.1

## Appendix 3.

**Food-Producing Animal Inventory by State, 2021 (Thousands)<sup>53</sup>**

State	Cattle	Hogs & Pigs	Chickens & Turkeys	Sheep & Lambs	Total
Alabama	1,295	12	1,190,897		1,192,204
Alaska	17	2	-		19
Arizona	980	141	-	110	1,231
Arkansas	1,780	126	1,105,212		1,107,118
California	5,150	99	23,577	555	29,381
Colorado	2,700	620	6,258	445	10,023
Connecticut	47	4	-		51
Delaware	13	5	222,400		222,418
Florida	1,700	13	63,900		65,613
Georgia	1,090	38	1,329,698		1,330,826
Hawaii	142	10	-		152
Idaho	2,500	32	-	230	2,762
Illinois	1,050	5,450	7,760	53	14,313
Indiana	850	4,450	66,101	60	71,461
Iowa	3,700	24,600	71,833	160	100,293
Kansas	6,550	2,060	-	70	8,680
Kentucky	2,090	460	305,480	58	308,088
Louisiana	775	6	2,534		3,315
Maine	76	5	-		81
Maryland	177	21	263,487		263,685
Massachusetts	37	9	176		222
Michigan	1,140	1,310	25,032	87	27,569
Minnesota	2,150	9,400	108,196	113	119,859
Mississippi	920	110	716,495		717,525
Missouri	4,310	3,750	336,607	100	344,767
Montana	2,450	205	1,564	200	4,419
Nebraska	6,850	3,800	10,183	74	20,907
Nevada	470	3	-	59	532
New Hampshire	32	4	-		36
New Jersey	25	8	-		33
New Mexico	1,390	1	-	85	1,476
New York	1,420	69	7,160	79	8,728
North Carolina	800	8,800	1,025,393	28	1,035,021

<sup>53</sup> USDA. Agricultural Statistics.



State (Continued)	Cattle	Hogs & Pigs	Chickens & Turkeys	Sheep & Lambs	Total
North Dakota	1,950	143	-	73	2,166
Ohio	1,260	2,700	177,930	126	182,016
Oklahoma	5,300	2,080	200,734	51	208,165
Oregon	1,250	9	2,744	155	4,158
Pennsylvania	1,430	1,400	283,258	97	286,185
Rhode Island	4	2	-	-	5
South Carolina	330	188	254,497	-	255,015
South Dakota	4,000	2,030	6,453	245	12,728
Tennessee	1,790	260	198,403	53	200,506
Texas	13,100	1,080	737,200	730	752,110
Utah	800	1,000	7,545	285	9,630
Vermont	245	4	206		455
Virginia	1,390	310	303,581	78	305,359
Washington	1,140	17	8,581	50	9,788
West Virginia	375	3	72,101	30	72,509
Wisconsin	3,450	370	64,729	86	68,635
Wyoming	1,300	95	-	340	1,735
<i>USDA Geographic Aggregations</i>					
New England			-	55	55
Other States			662,000	150	662,150

Note: Totals may not add due to rounding

Appendix 4.  
**Veterinary Industry Statistics by State, 2020-21<sup>54</sup>**

State	Employment	Wages	Output
Alabama	6,635	\$248,572,439	\$770,408,141
Alaska	924	\$43,707,966	\$107,288,187
Arizona	9,538	\$475,510,372	\$1,107,483,474
Arkansas	3,365	\$123,611,460	\$390,719,426
Arkansas	3,365	\$123,611,460	\$390,719,426
California	46,201	\$2,679,494,656	\$5,364,525,474
Colorado	11,171	\$565,917,013	\$1,297,095,606
Connecticut	5,249	\$293,285,968	\$609,475,860
Delaware	1,252	\$61,800,447	\$145,373,171
Florida	31,357	\$1,473,810,513	\$3,640,947,713
Georgia	13,910	\$595,986,350	\$1,615,128,446
Hawaii	1,547	\$84,878,471	\$179,626,435
Idaho	2,848	\$111,093,067	\$330,689,131
Illinois	15,543	\$732,863,566	\$1,804,740,578
Indiana	8,971	\$372,509,541	\$1,041,647,541
Iowa	4,613	\$192,396,362	\$535,628,147
Kansas	4,659	\$173,180,418	\$540,969,334
Kentucky	6,338	\$277,514,268	\$735,922,652
Louisiana	5,955	\$220,689,791	\$691,451,466
Maine	2,459	\$124,312,561	\$285,521,269
Maryland	8,389	\$426,172,722	\$974,069,916
Massachusetts	9,162	\$524,099,870	\$1,063,825,077
Michigan	12,209	\$568,749,335	\$1,417,620,647
Minnesota	7,635	\$356,133,114	\$886,520,898
Mississippi	3,097	\$108,732,536	\$359,601,208
Missouri	8,329	\$343,938,377	\$967,103,151
Montana	2,225	\$87,007,578	\$258,350,884
Nebraska	3,226	\$128,611,933	\$374,579,753
Nevada	4,154	\$207,033,563	\$482,332,391
New Hampshire	2,686	\$139,959,791	\$311,878,865
New Jersey	10,412	\$605,030,184	\$1,208,966,023
New Mexico	2,389	\$101,679,634	\$277,393,376
New York	20,228	\$1,127,373,422	\$2,348,728,843
North Carolina	16,735	\$741,756,169	\$1,943,146,984

<sup>54</sup> BLS. Quarterly Census of Employment and Wages, 2021; Census. Annual Services Survey, 2020.

State (Continued)	Employment	Wages	Output
North Dakota	1,009	\$46,058,114	\$117,157,772
Ohio	16,542	\$722,938,318	\$1,920,737,222
Oklahoma	5,389	\$209,804,475	\$625,731,646
Oregon	7,788	\$372,560,598	\$904,286,149
Pennsylvania	16,481	\$799,735,324	\$1,913,654,344
Rhode Island	1,363	\$87,761,879	\$158,261,687
South Carolina	6,974	\$309,463,950	\$809,770,365
South Dakota	1,208	\$51,521,077	\$140,264,210
Tennessee	9,995	\$416,896,723	\$1,160,547,004
Texas	36,035	\$1,752,332,444	\$4,184,123,189
Utah	3,510	\$151,056,933	\$407,555,776
Vermont	1,261	\$62,225,251	\$146,418,186
Virginia	13,991	\$654,041,878	\$1,624,533,580
Washington	11,856	\$589,101,642	\$1,376,632,844
West Virginia	2,006	\$77,037,530	\$232,922,190
Wisconsin	8,855	\$391,623,830	\$1,028,178,461
Wyoming	1,006	\$37,644,428	\$116,809,433

## Appendix 5.

### Animal Production Industry Statistics by State, 2020-21<sup>55</sup>

State	Employment	Wages	Output
Alabama	2,044	\$118,640,643	\$1,543,832,716
Alaska	315	\$14,117,477	\$237,919,425
Arizona	4,461	\$195,984,253	\$3,369,392,243
Arkansas	3,169	\$178,366,543	\$2,393,544,949
Arkansas	3,169	\$178,366,543	\$2,393,544,949
California	28,004	\$1,354,734,038	\$21,151,414,566
Colorado	7,071	\$329,173,504	\$5,340,724,625
Connecticut	1,233	\$62,260,967	\$931,284,608
Delaware	*	*	*
Florida	5,654	\$237,596,318	\$4,270,464,861
Georgia	4,730	\$214,969,519	\$3,572,567,879
Hawaii	986	\$48,482,296	\$744,725,566
Idaho	10,682	\$433,935,198	\$8,068,112,069
Illinois	4,681	\$210,617,248	\$3,535,558,191
Indiana	6,794	\$296,770,026	\$5,131,506,591
Iowa	11,145	\$507,586,254	\$8,417,815,860
Kansas	7,466	\$352,271,390	\$5,639,068,031
Kentucky	2,868	\$123,998,365	\$2,166,199,721
Louisiana	815	\$36,006,645	\$615,569,307
Maine	1,075	\$45,144,002	\$811,947,245
Maryland	1,218	\$54,179,467	\$919,955,111
Massachusetts	2,406	\$288,851,782	\$1,817,251,230
Michigan	8,769	\$356,227,001	\$6,623,223,623
Minnesota	11,294	\$523,579,433	\$8,530,355,525
Mississippi	2,527	\$126,298,370	\$1,908,642,501
Missouri	4,798	\$189,012,522	\$3,623,928,263
Montana	2,799	\$105,887,318	\$2,114,084,037
Nebraska	8,132	\$362,152,806	\$6,142,097,674
Nevada	1,198	\$45,523,283	\$904,849,116
New Hampshire	523	\$31,663,471	\$395,021,776
New Jersey	640	\$23,447,948	\$483,391,848
New Mexico	5,015	\$194,400,678	\$3,787,828,312
New York	11,430	\$495,829,318	\$8,633,076,292

<sup>55</sup> BLS. Quarterly Census of Employment and Wages, 2021; BEA. GDP by Industry Accounts. Gross Output by Industry, 2020.

State (Continued)	Employment	Wages	Output
North Carolina	8,062	\$358,301,972	\$6,089,226,690
North Dakota	716	\$31,770,917	\$540,794,630
Ohio	6,461	\$273,376,099	\$4,879,991,769
Oklahoma	4,418	\$185,413,294	\$3,336,914,353
Oregon	3,721	\$148,179,354	\$2,810,470,419
Pennsylvania	7,603	\$300,865,352	\$5,742,544,099
Rhode Island	*	*	*
South Carolina	1,687	\$64,867,356	\$1,274,190,700
South Dakota	3,857	\$170,240,939	\$2,913,191,186
Tennessee	2,041	\$87,189,514	\$1,541,566,816
Texas	26,849	\$1,203,104,374	\$20,279,043,340
Utah	2,774	\$106,869,767	\$2,095,201,543
Vermont	1,797	\$67,650,681	\$1,357,273,674
Virginia	3,037	\$122,551,041	\$2,293,845,381
Washington	6,696	\$284,518,978	\$5,057,487,214
West Virginia	243	\$8,626,087	\$183,537,842
Wisconsin	17,179	\$648,708,125	\$12,975,294,630
Wyoming	1,894	\$77,576,190	\$1,430,537,751

\*Not Reported

## Appendix 6.

### Meat and Dairy Processing Industry Statistics by State, 2020-21<sup>56</sup>

State	Employment	Wages	Output
Alabama	22,830	\$972,175,527	\$1,160,249,076
Alaska	97	\$3,876,844	\$4,872,420
Arizona	5,332	\$359,847,923	\$319,127,526
Arkansas	33,379	\$1,430,765,987	\$1,684,995,627
Arkansas	33,379	\$1,430,765,987	\$1,684,995,627
California	39,291	\$2,355,125,645	\$2,242,969,044
Colorado	10,258	\$664,269,116	\$554,161,909
Connecticut	1,356	\$72,075,418	\$84,270,922
Delaware	7,391	\$357,522,231	\$371,258,336
Florida	5,177	\$256,062,666	\$297,823,716
Georgia	36,252	\$1,583,300,267	\$1,832,574,751
Hawaii	823	\$37,256,242	\$46,771,831
Idaho	6,806	\$364,861,559	\$409,600,354
Illinois	25,168	\$1,502,011,445	\$1,364,595,156
Indiana	14,953	\$818,130,560	\$810,487,676
Iowa	37,306	\$2,117,000,004	\$1,934,341,786
Kansas	20,022	\$1,236,493,233	\$1,016,880,930
Kentucky	11,625	\$577,840,527	\$608,974,229
Louisiana	4,732	\$173,820,332	\$243,537,294
Maine	1,027	\$55,499,640	\$58,773,575
Maryland	4,797	\$250,911,671	\$269,291,605
Massachusetts	4,318	\$276,950,783	\$243,689,901
Michigan	12,046	\$732,825,999	\$671,285,781
Minnesota	22,349	\$1,290,846,436	\$1,196,842,538
Mississippi	17,336	\$677,666,766	\$870,806,996
Missouri	22,706	\$1,159,542,681	\$1,226,218,042
Montana	784	\$32,588,059	\$42,371,646
Nebraska	29,756	\$1,731,590,432	\$1,505,922,364
Nevada	1,200	\$65,236,778	\$72,483,219
New Hampshire	741	\$63,564,517	\$47,077,500
New Jersey	5,811	\$376,339,878	\$328,190,298
New Mexico	2,258	\$105,282,614	\$135,880,680
New York	14,167	\$998,722,699	\$876,723,957

<sup>56</sup> BLS. Quarterly Census of Employment and Wages by NAICS, 2021; BEA. GDP by Industry Accounts. Gross Output by Industry, 2020.

State (Continued)	Employment	Wages	Output
North Carolina	33,386	\$1,459,648,690	\$1,688,230,878
North Dakota	914	\$46,428,409	\$49,328,899
Ohio	19,132	\$1,274,309,458	\$1,085,445,544
Oklahoma	11,784	\$542,131,763	\$605,579,021
Oregon	4,612	\$254,795,389	\$269,870,329
Pennsylvania	23,200	\$1,365,975,154	\$1,266,304,799
Rhode Island	836	\$42,113,397	\$44,297,086
South Carolina	8,750	\$394,423,133	\$446,586,589
South Dakota	8,365	\$456,304,914	\$442,260,802
Tennessee	14,887	\$774,890,798	\$792,266,022
Texas	47,921	\$2,565,761,146	\$2,502,713,426
Utah	8,380	\$453,833,058	\$482,332,377
Vermont	2,316	\$138,217,755	\$148,101,049
Virginia	15,370	\$773,835,797	\$811,813,150
Washington	7,301	\$417,414,304	\$392,659,716
West Virginia	1,606	\$65,422,390	\$80,671,206
Wisconsin	42,087	\$2,440,029,769	\$2,509,715,380
Wyoming	295	\$8,225,958	\$14,818,186



## Appendix 7.

### Pet Services Statistics by State, 2020-21<sup>57</sup>

State	Employment	Wages	Output
Alabama	1,561	\$37,513,175	\$64,506,457
Alaska	329	\$7,251,154	\$13,595,531
Arizona	3,064	\$93,659,135	\$126,616,134
Arkansas	931	\$24,712,591	\$38,472,461
Arkansas	931	\$24,712,591	\$38,472,461
California	14,539	\$489,067,645	\$600,806,781
Colorado	4,748	\$151,085,784	\$196,205,420
Connecticut	1,803	\$51,600,799	\$74,506,818
Delaware	417	\$10,607,144	\$17,232,026
Florida	9,420	\$267,016,250	\$389,270,230
Georgia	4,108	\$105,840,960	\$169,758,185
Hawaii	231	\$5,530,613	\$9,545,799
Idaho	941	\$21,247,052	\$38,885,699
Illinois	5,932	\$152,662,390	\$245,132,803
Indiana	3,156	\$71,412,009	\$130,417,924
Iowa	1,627	\$33,914,258	\$67,233,829
Kansas	1,526	\$32,685,473	\$63,060,124
Kentucky	1,489	\$33,299,565	\$61,531,144
Louisiana	1,162	\$24,837,001	\$48,018,260
Maine	752	\$18,106,133	\$31,075,500
Maryland	2,796	\$78,541,642	\$115,541,355
Massachusetts	4,225	\$131,601,563	\$174,593,070
Michigan	3,378	\$80,615,712	\$139,591,809
Minnesota	2,927	\$67,611,509	\$120,954,773
Mississippi	516	\$10,472,126	\$21,323,083
Missouri	3,119	\$73,499,251	\$128,888,944
Montana	522	\$12,093,591	\$21,571,026
Nebraska	838	\$18,091,056	\$34,629,347
Nevada	1,468	\$41,754,627	\$60,663,344
New Hampshire	1,115	\$27,145,498	\$46,076,041
New Jersey	3,671	\$97,221,747	\$151,699,683
New Mexico	887	\$22,798,158	\$36,654,214
New York	6,221	\$193,995,889	\$257,075,382

<sup>57</sup> BLS. Quarterly Census of Employment and Wages, 2021; Census. Annual Services Survey, 2020.

State (Continued)	Employment	Wages	Output
North Carolina	5,765	\$142,238,138	\$238,231,728
North Dakota	409	\$9,010,940	\$16,901,436
Ohio	5,687	\$128,249,136	\$235,008,471
Oklahoma	1,442	\$34,055,194	\$59,588,925
Oregon	2,082	\$59,397,926	\$86,036,159
Pennsylvania	5,586	\$128,936,504	\$230,834,767
Rhode Island	540	\$13,457,566	\$22,314,854
South Carolina	2,330	\$56,806,608	\$96,284,462
South Dakota	420	\$9,853,246	\$17,355,998
Tennessee	2,766	\$69,063,257	\$114,301,641
Texas	12,961	\$351,613,184	\$535,597,819
Utah	1,374	\$32,568,143	\$56,778,906
Vermont	315	\$7,808,035	\$13,016,998
Virginia	4,771	\$123,069,816	\$197,155,867
Washington	3,892	\$123,160,198	\$160,832,244
West Virginia	455	\$9,994,087	\$18,802,331
Wisconsin	3,467	\$70,856,594	\$143,269,627
Wyoming	295	\$6,578,258	\$12,190,522

## Appendix 8.

### Consumption of Meat and Dairy Products by State, 2021 (Million lbs.)<sup>58</sup>

State	Red Meat	Poultry	Eggs	Dairy	Total
Alabama	560.5	401.4	189.9	3,288.9	4,440.8
Alaska	81.5	58.4	27.6	478.1	645.6
Arizona	809.2	579.5	274.2	4,748.4	6,411.3
Arkansas	336.5	241.0	114.0	1,974.7	2,666.2
California	4,363.7	3,125.0	1,478.8	25,606.0	34,573.5
Colorado	646.4	462.9	219.0	3,792.9	5,121.2
Connecticut	401.0	287.2	135.9	2,353.0	3,177.0
Delaware	111.6	79.9	37.8	654.8	884.1
Florida	2,422.3	1,734.7	820.9	14,214.0	19,191.9
Georgia	1,201.0	860.1	407.0	7,047.6	9,515.8
Hawaii	160.3	114.8	54.3	940.7	1,270.2
Idaho	211.4	151.4	71.6	1,240.5	1,675.0
Illinois	1,409.2	1,009.2	477.5	8,269.2	11,165.2
Indiana	756.9	542.0	256.5	4,441.5	5,996.9
Iowa	355.1	254.3	120.3	2,083.8	2,813.5
Kansas	326.4	233.7	110.6	1,915.1	2,585.7
Kentucky	501.5	359.1	169.9	2,942.8	3,973.3
Louisiana	514.3	368.3	174.3	3,017.6	4,074.4
Maine	152.6	109.3	51.7	895.5	1,209.1
Maryland	685.6	491.0	232.3	4,023.3	5,432.3
Massachusetts	776.8	556.3	263.2	4,558.1	6,154.4
Michigan	1,117.8	800.5	378.8	6,559.0	8,856.0
Minnesota	634.7	454.5	215.1	3,724.6	5,028.9
Mississippi	328.1	234.9	111.2	1,925.1	2,599.3
Missouri	686.0	491.2	232.5	4,025.3	5,434.9
Montana	122.8	87.9	41.6	720.6	973.0
Nebraska	218.4	156.4	74.0	1,281.5	1,730.3
Nevada	349.7	250.4	118.5	2,051.7	2,770.3
New Hampshire	154.5	110.6	52.3	906.4	1,223.9
New Jersey	1,030.6	738.0	349.2	6,047.6	8,165.5
New Mexico	235.3	168.5	79.7	1,380.8	1,864.4
New York	2,206.0	1,579.8	747.6	12,944.6	17,477.9
North Carolina	1,173.4	840.3	397.6	6,885.5	9,296.9

<sup>58</sup> USDA. Food Availability (Per Capita) Data System, 2021; Census. Population Estimates, 2021.

State (Continued)	Red Meat	Poultry	Eggs	Dairy	Total
North Dakota	86.2	61.7	29.2	505.7	682.8
Ohio	1,310.1	938.2	444.0	7,687.5	10,379.7
Oklahoma	443.4	317.5	150.2	2,601.6	3,512.7
Oregon	472.2	338.2	160.0	2,771.0	3,741.4
Pennsylvania	1,441.8	1,032.5	488.6	8,460.1	11,423.0
Rhode Island	121.8	87.3	41.3	715.0	965.4
South Carolina	577.3	413.4	195.6	3,387.4	4,573.7
South Dakota	99.6	71.3	33.7	584.3	788.9
Tennessee	775.7	555.5	262.9	4,551.9	6,146.0
Texas	3,283.9	2,351.7	1,112.8	19,269.5	26,017.8
Utah	371.2	265.8	125.8	2,178.3	2,941.2
Vermont	71.8	51.4	24.3	421.3	568.8
Virginia	961.1	688.3	325.7	5,639.8	7,614.9
Washington	860.6	616.3	291.6	5,050.2	6,818.8
West Virginia	198.3	142.0	67.2	1,163.5	1,571.0
Wisconsin	655.7	469.6	222.2	3,847.6	5,195.0
Wyoming	64.4	46.1	21.8	377.7	510.0

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