

Establishing a School of Veterinary Medicine in Kentucky at



MURRAY STATE
UNIVERSITY

Feasibility Report

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Murray State University

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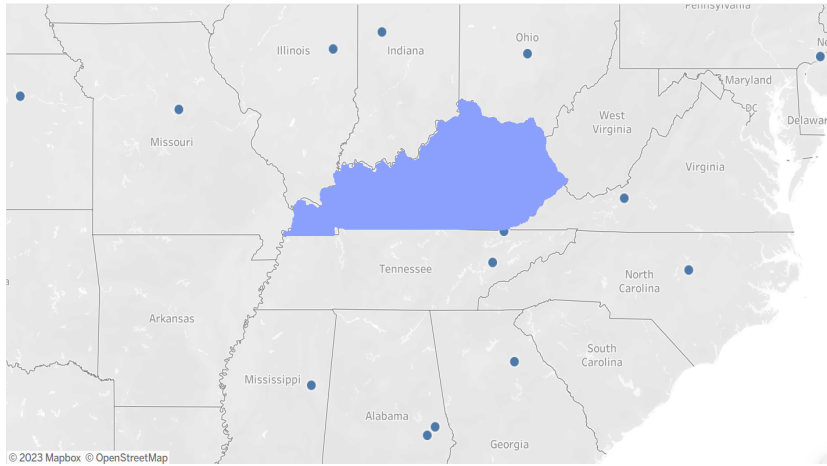
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EXECUTIVE SUMMARY

Murray State University proposes the development of an accredited school of veterinary medicine that will grant doctor of veterinary medicine degrees and better serve people, animals, industry, and public health throughout Kentucky.



Murray State University's Hutson School of Agriculture is perfectly positioned to address the growing need for rural veterinarians in Kentucky. Currently, there are **no veterinary schools in Kentucky**, students compete for 41 seats to attend Auburn and Tuskegee Universities, or compete at other veterinary schools.

Kentucky has a need for rural veterinarians that has not been met by the current approach to training Kentucky students.

Initial Costs

\$89 million cost to build school of veterinary medicine

\$142.4 million in economic output resulting from the construction project

\$36.2 million final demand earnings which represents the change in earnings in the construction industry resulting from the estimated construction expenditures

679 jobs in the construction industry over the period of the construction phase of the project



Impacts



Jobs Creation: The new school will address the shortage of veterinarians in Kentucky. The historical trend of not enough veterinarians in Kentucky continues to plague the Commonwealth and Kentucky animal producers as they struggle to meet animal medical care needs. An estimated 50-70 veterinarians graduating each year from a Kentucky veterinary school would increase the likelihood of veterinarians remaining in Kentucky.



Keep Dollars in Kentucky: The new school will capture tuition that is currently leaving the state, approximately \$4.8 million annually.



Regional Contracts Maintained: The creation of a Murray State University School of Veterinary Medicine will not impact Regional Contract Agreement with Auburn and Tuskegee.

How



Distributed Education Model (Clinical Model) keeps cost low while increasing stakeholder engagement and exposing students to industry standard equipment. This will be a **3 year** program, versus a typical 4 year model, that keeps tuition more affordable and keeps the veterinary school functioning at full capacity year-round.



MSU Existing Supports:

1. Breathitt Veterinary Center, a Biosafety Level 1 veterinary diagnostic laboratory, located in Hopkinsville
2. Rudolph Equine Education Center and Eldon Heathcott Rodeo Facility located on the West Farm complex
3. West Farm Center, which houses the university's certified Angus herd and Equine herd
4. North Farm Complex, which houses the university's swine unit, equine quarantine facility, and beef cattle research
5. Eagle Rest Farm, a 534-acre farm and historic cattle ranch in Ballard County, located about 60 miles northwest of campus
6. Murray State University Hopkinsville Regional Campus
7. Tosh Swine Finishing Facility



Incentivizing Rural Veterinarians

1. Murray State University endowment to incentivize rural veterinary medicine students
2. United States Department of Agriculture Veterinarian Medical Loan Repayment Plan

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VETERINARY LANDSCAPE



Introduction

Now is an exceptional time to establish a school of veterinary medicine in Kentucky.

1. Breathitt Veterinary Center has been designated as a Biosafety Level 1 veterinary laboratory
2. Kentucky ranks in the top five nationally for number of farms, but lacks a veterinary school in the state
3. Kentucky ranks number one in thoroughbred breeding and total equine sales
4. Kentucky ranks eighth in beef cattle inventory in the US
5. The human-animal bond is experiencing unprecedented growth, and animal agriculture is undergoing significant changes
6. Innovative educational models are enabling the establishment of veterinary schools and colleges in a more economically feasible and sustainable way
7. Substantial investments, both private and public, in the animal health sector, particularly in the areas of companion animal and veterinary services, are creating new opportunities for collaborations in education
8. Various positions are available for graduates, and the demand for veterinary professionals is currently at a high level
9. Recent Multi-million dollar gift to Murray State University

Kentucky's Livestock Industry

Kentucky's livestock industry is well known. Kentucky consistently ranks in the top 10 in domestic cattle production and has a world renowned equine industry. There are a combined 2,304,500 head of livestock in Kentucky. There are 54 sole large animal practice veterinarians covering the state and 2.3 million large animals.



This works out to 42,592 large animals per large animal veterinarian.

Data Source: Wolf, 2023

BACKGROUND ON VETERINARY MEDICINE

The United States Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) released a call for applicants on January 1, 2023 to fill the void in rural veterinarians in Kentucky following the request of Dr. Katherine Flynn, State Veterinarian with the Kentucky Department of Agriculture (<https://www.nifa.usda.gov/ky233>).

Kentucky has 54 accredited veterinarians working full time serving large food animal practices



There is a significant need to add veterinarians to rural Kentucky specifically to provide relief to the increasing veterinarian shortage and enhance the animal agriculture economy of Kentucky (USDA NIFA, 2023).



1 large animal veterinarian to 42,592 large animals

VETERINARIAN CENSUS

Current national need is approximately 5000 veterinarians. This estimation is compounded by the fact that an increasing number of younger veterinarians are not seeking 40 hours per week positions, so that 5000 individuals are needed to meet FTE demand between 3000 – 4000.

Most recent American Veterinary Medical Association analysis of gap between official job postings and veterinarians seeking jobs is nearly 3000.

Quick Facts



5,000 US students are seeking Vet degrees overseas



2,000 Doctors of Veterinary Medicine retire per year



3,200 Doctors of Veterinary Medicine graduate per year



It takes 5,000 graduates to produce 3,500 Full Time Equivalent veterinarians

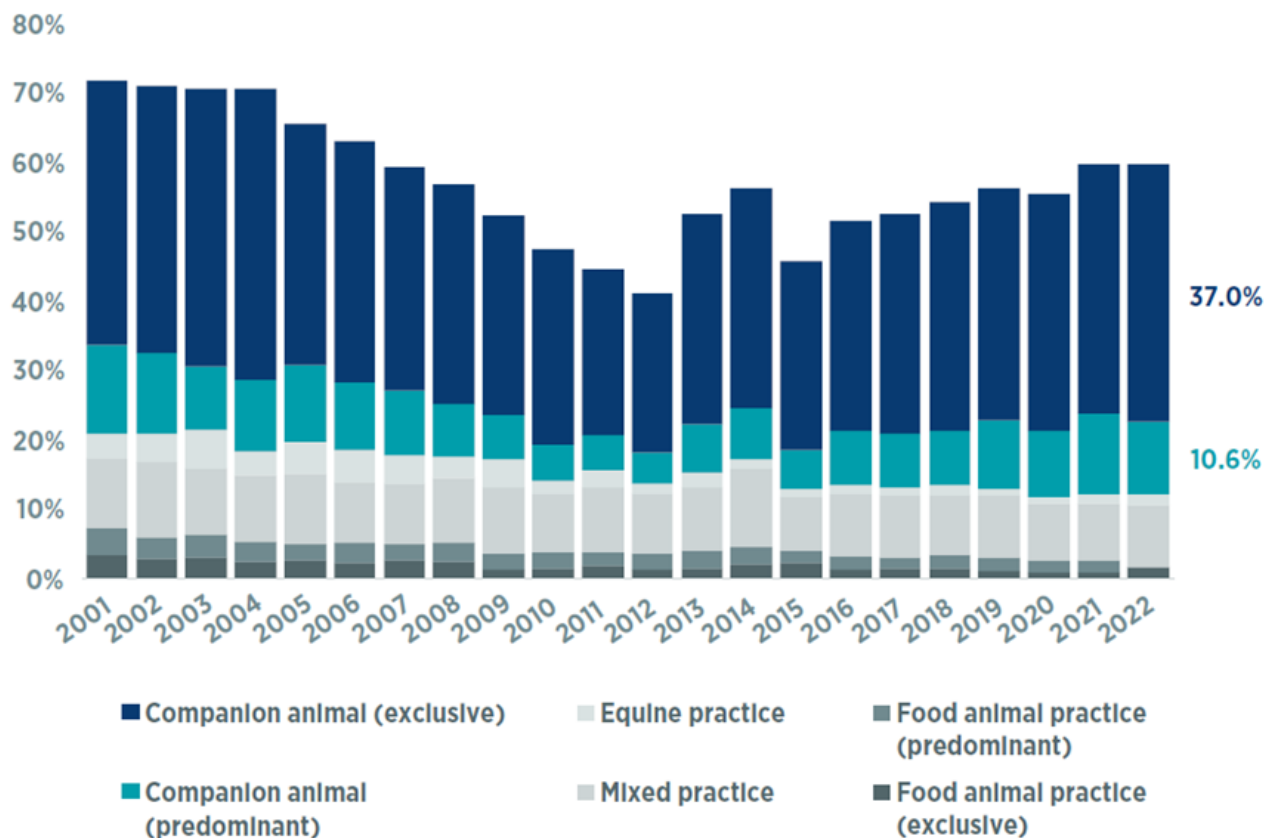


KENTUCKY VETERINARIAN OUTLOOK

There are only 54 vets across the state dedicated to full-time services of large animals. The number of large animal veterinarians is insufficient to serve Kentucky's livestock industry.

There is a downward trend in large animal veterinarians across the state. This is even more noticeable if you look at veterinarians specializing in the food livestock industry .

PERCENTAGE OF ALL NEW GRADUATES WHO ACCEPTED OFFERS IN PRIVATE PRACTICE

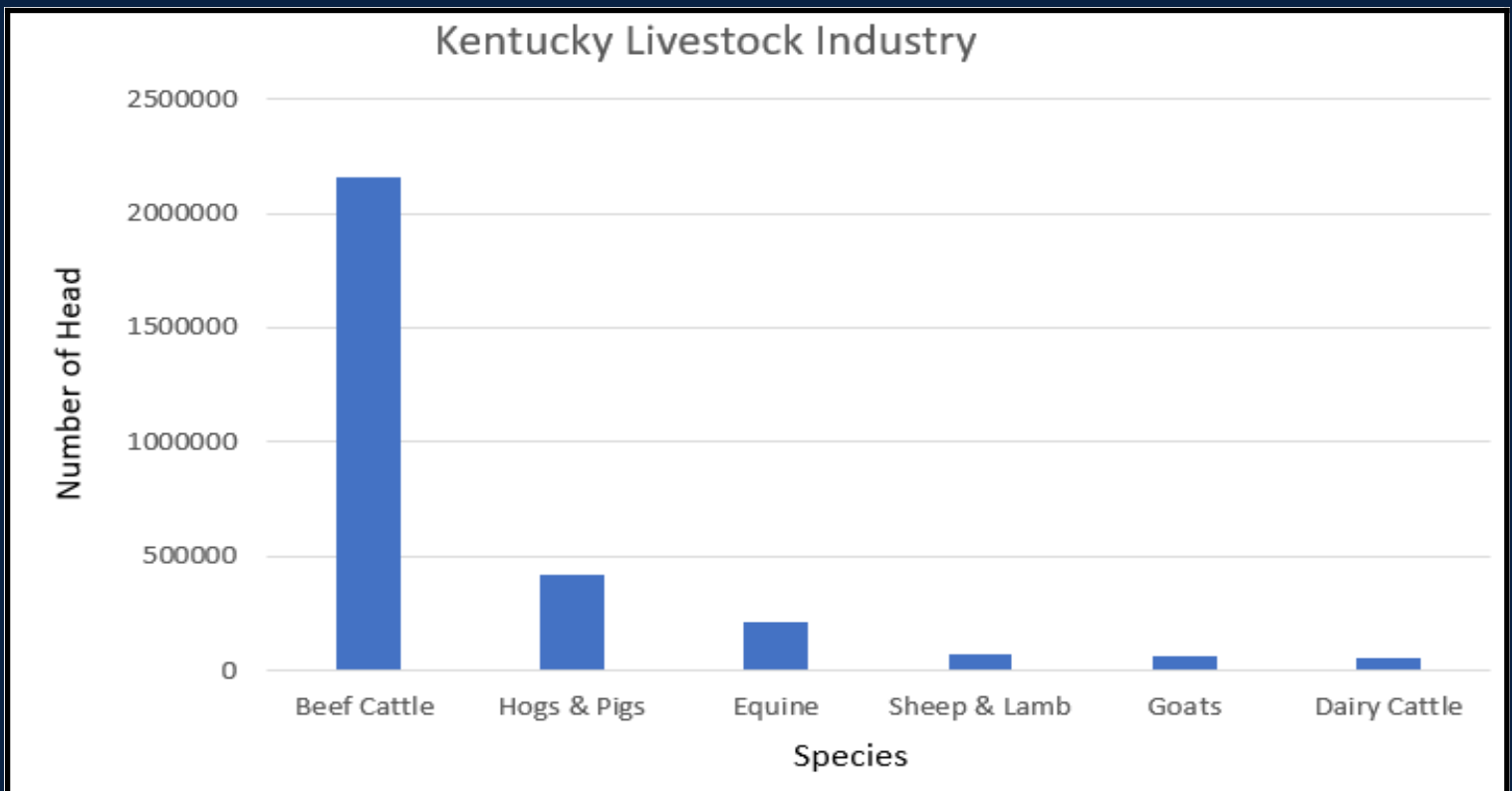


There is one large animal focused veterinarian per 42,592 head of livestock in Kentucky.

KENTUCKY VETERINARIAN STATUS

1. Data from the Board of Veterinary Examiners identify 1,564 practicing veterinarians with addresses in Kentucky and 2,613 licensed veterinarians in total.
2. The largest concentration are practicing in urban counties which further emphasizes the need for rural veterinarians.
3. Data from the Kentucky Center for Statistics confirmed the distribution of veterinarians across the state, with the largest concentrations in urban areas and lighter concentrations in the eastern part of the state and in more rural areas.
4. Data from Auburn University indicates that approximately half of Kentuckians who benefit from the veterinary contract spaces program at that institution return to Kentucky to practice after graduation.

Large animal vets are needed across the state, however most Kentucky veterinarians are focusing on small animals in urban areas





KY BEEF INDUSTRY



Number 8 nationwide in beef cattle inventory



32,000 farms within the state are dedicated to raising beef cattle



Nearly **1 million beef cows**



2 million total when adding additional cattle categories including calves, bulls, and dairy cows



\$878.6 million in gross receipts from the production of cattle (2021)

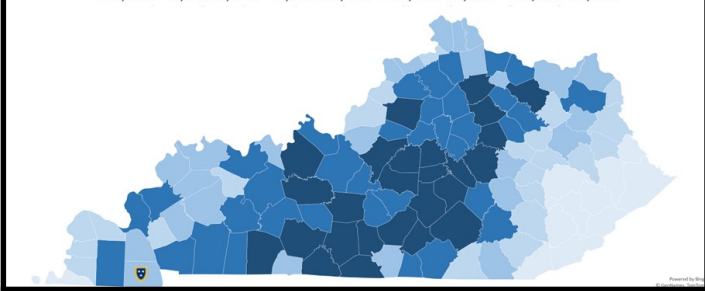


Number 5 commodity in terms of revenue generation



Angus cattle being among the most prominent and favored breeds in the region

■ >1,000 ■ 1,001-5,000 ■ 5,001-10,000 ■ 10,001-30,000 ■ 30,001-80,000



Data Sources:

2022 Released July 12, 2023 A comprehensive statewide survey of all breeds of horses, ponies, donkeys and mules
https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf

[/https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf](https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf)



KY DAIRY INDUSTRY



Kentucky's **45,000 milk cows produced 107 million gallons** of milk



243 million dollars from selling dairy products, including milk



Each Kentucky dairy cow produces **2,163 gallons of milk per year**



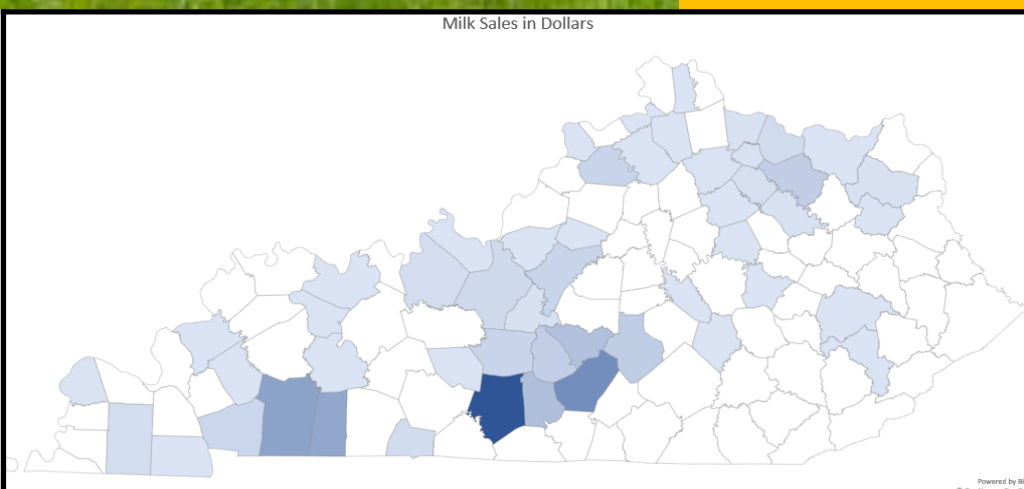
Kentucky has:

- 6 commercial milk processing plants
- 3 commercial cheese processing plants
- 1 specialty ice-cream plant
- 1 on-farm milk bottling plant
- 6 on-farm cheese makers



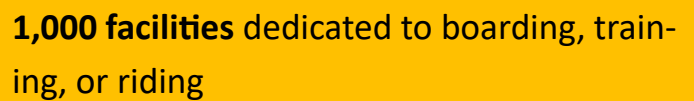
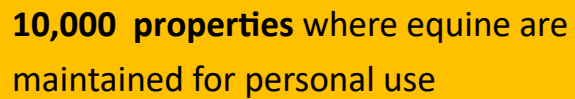
Top Dairy Counties in Kentucky:

- Logan
- Barren
- Adair
- Christian
- Warren



Data Sources: National Agriculture Statistics Service and Economic Research Commission as cited by the Kentucky Livestock Coalition

Map Data Source: USDA: National Agriculture Statistics Service. <https://quickstats.nass.usda.gov/results/3302A092-08DF-3746-A591-87D7B113F18A>



[/https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf](https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf)



KY EQUINE INDUSTRY



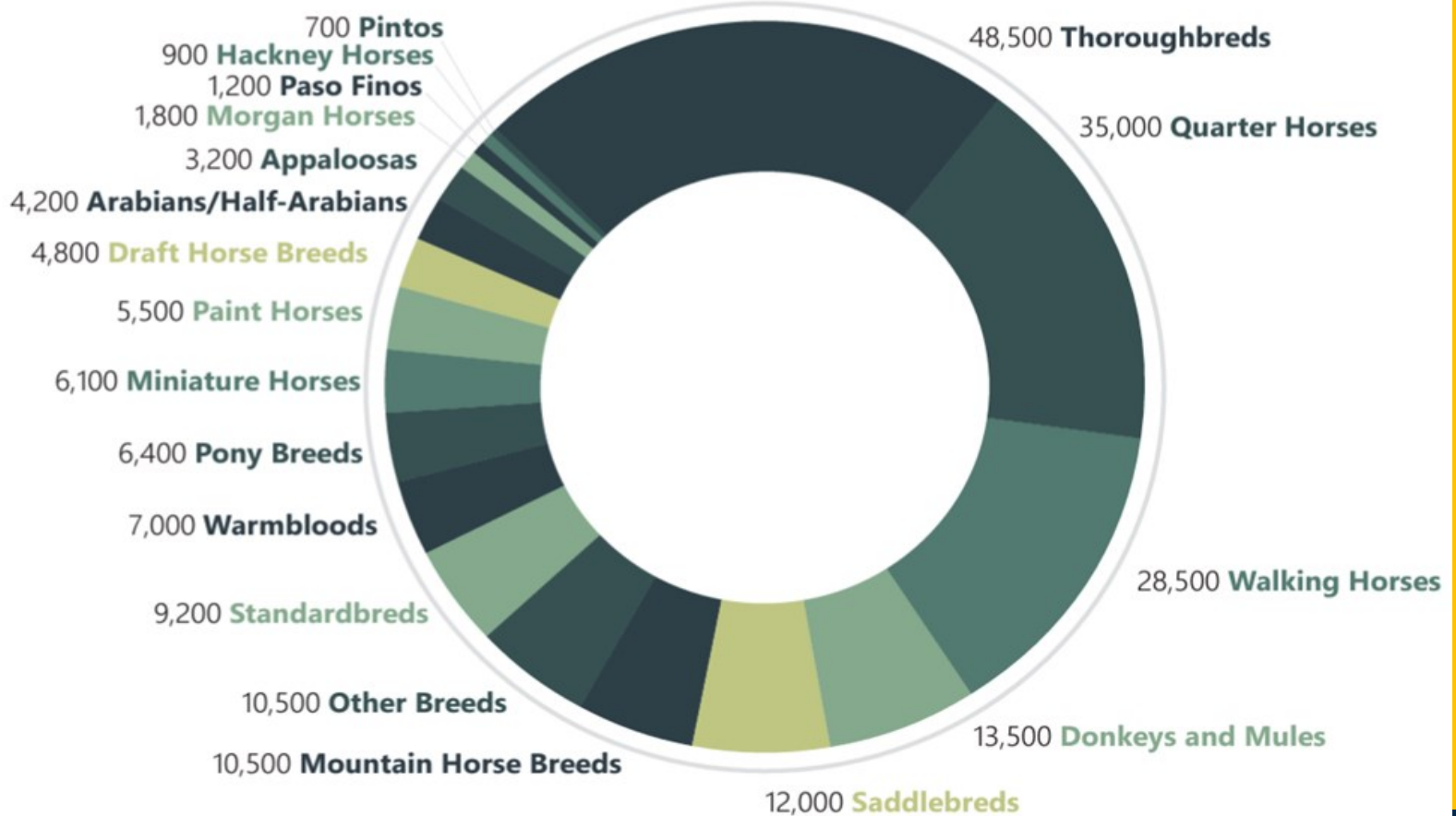
209,500 equine comprised of horses, ponies, mules, and donkeys



600 breeding operations



1,400 additional operations involving horses that have alternative primary functions



Data Sources:

2022 Released July 12, 2023 A comprehensive statewide survey of all breeds of horses, ponies, donkeys and mules
<https://efaidnbmnnnibpcajpcglclefindmkaj>

https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf



KY EQUINE INDUSTRY



\$1.1 billion in sales of horses, mules, donkeys annually



\$990 million in equine related services annually



\$450 million derived from breeding services annually



\$540 million stemming from non-breeding services annually

Kentucky Equine Industry Veterinarian Needs

	% of Respondents
Care of Senior Equine	27.1%
Musculoskeletal Issues	22.4%
Gut/Digestive Problems	17.4%
Parasites and Dewormer Resistance	13.4%
Laminitis	13.0%
Infectious Diseases	12.5%
Reproduction and Foal Care	7.1%
Eye Issues	4.7%
Metabolic Problems	4.2%
Other	3.0%
Neurologic Diseases	2.3%
Genetics	2.2%

2022 Released July 12, 2023 A comprehensive statewide survey of all breeds of horses, ponies, donkeys and mules
https://equine.ca.uky.edu/sites/equine.ca.uky.edu/files/2022%20Kentucky%20Equine%20Survey%20FOR%20ONLINE_2.pdf



KY POULTRY INDUSTRY



Number 7 nationwide for broiler production



Over 900 large scale poultry farms in Kentucky

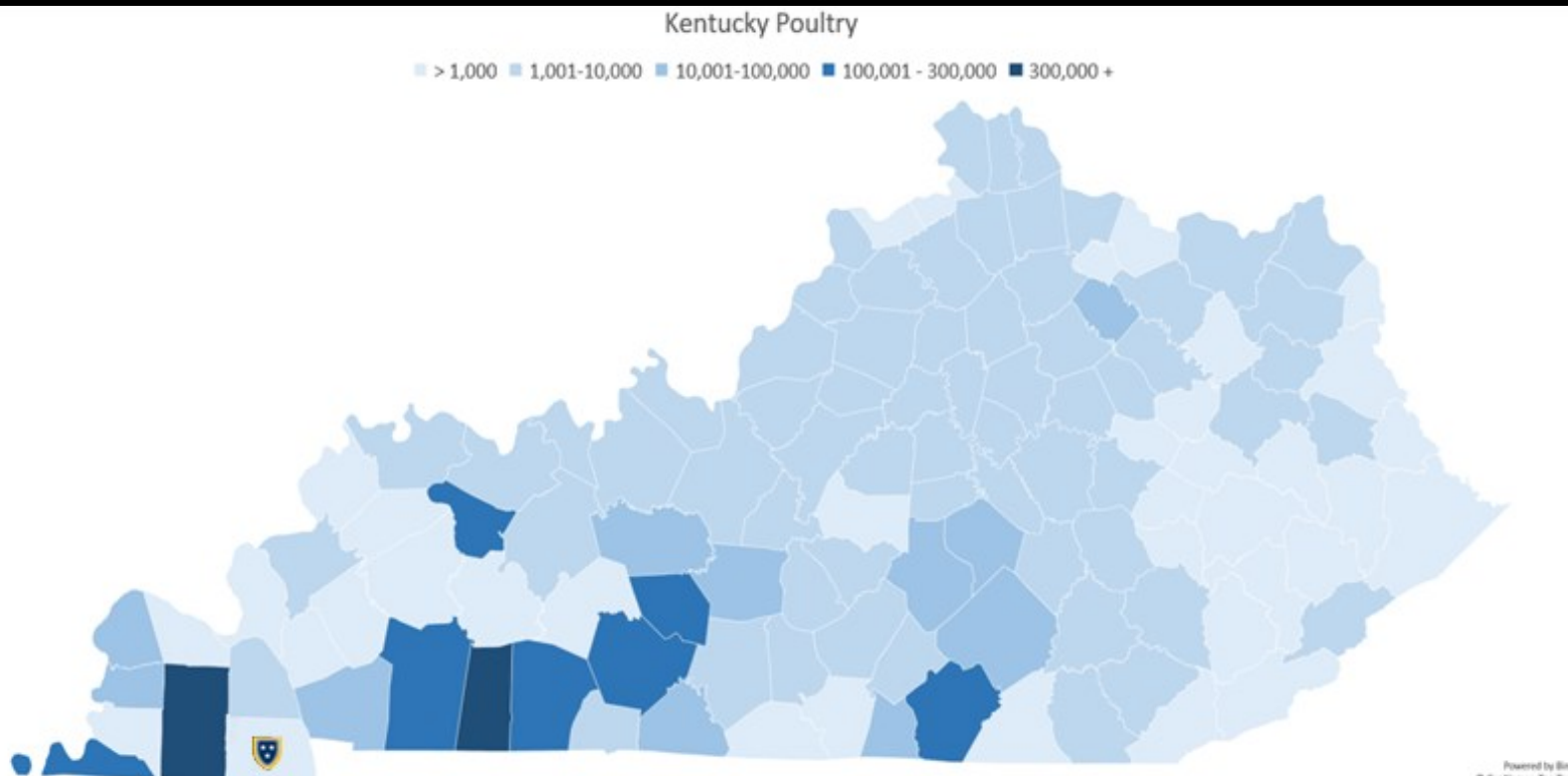


3200 poultry houses in **49** counties



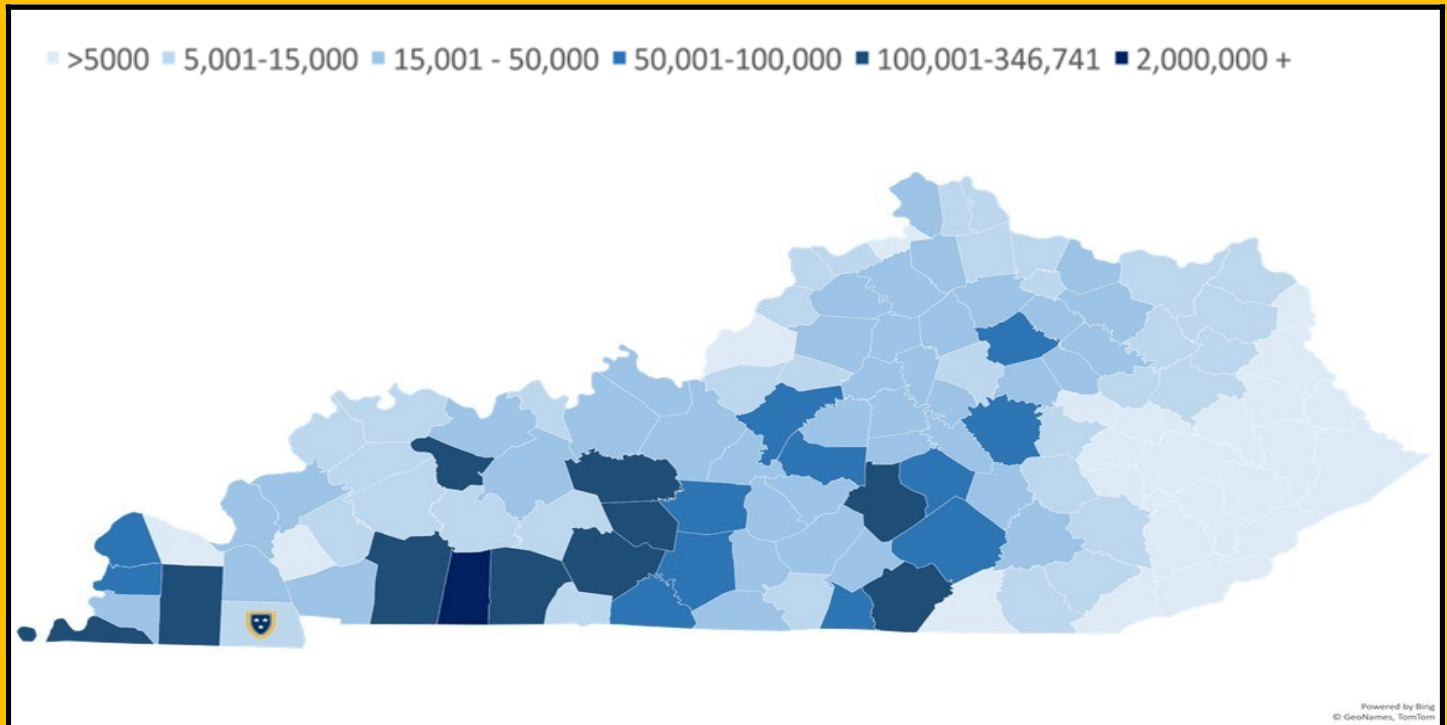
Broiler production brought **\$1.03 billion** to Kentucky in 2021

Kentucky Poultry Distribution

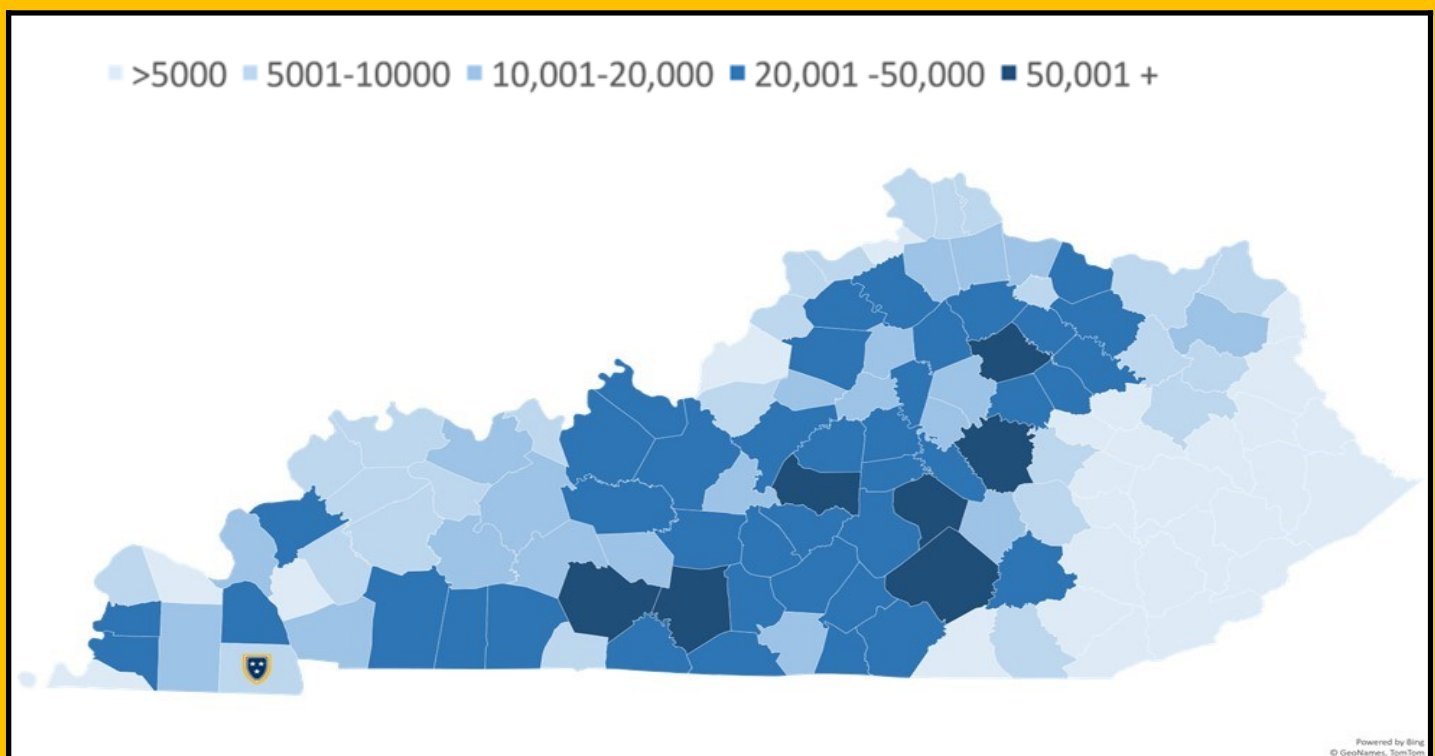


ANIMAL AGRICULTURE IN KENTUCKY

Distribution of Total Livestock

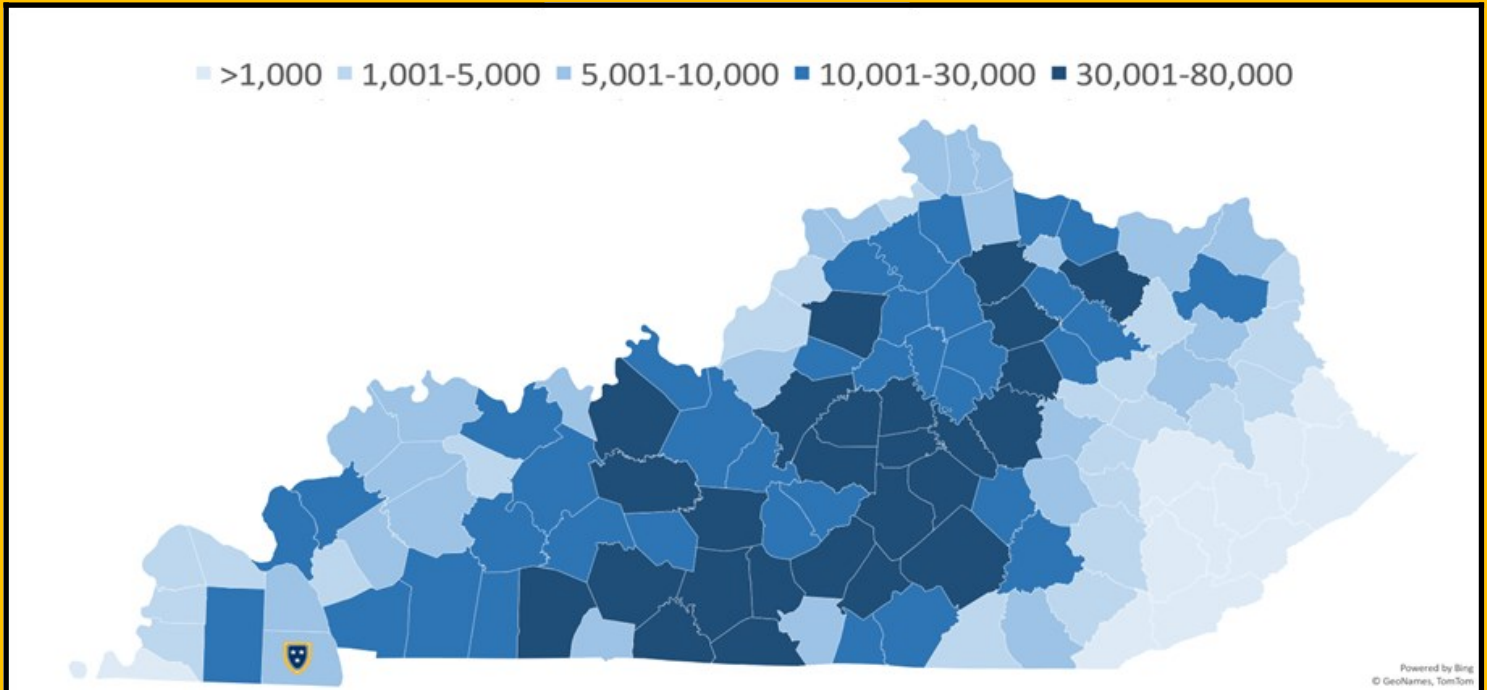


Distribution of Large Animal Livestock

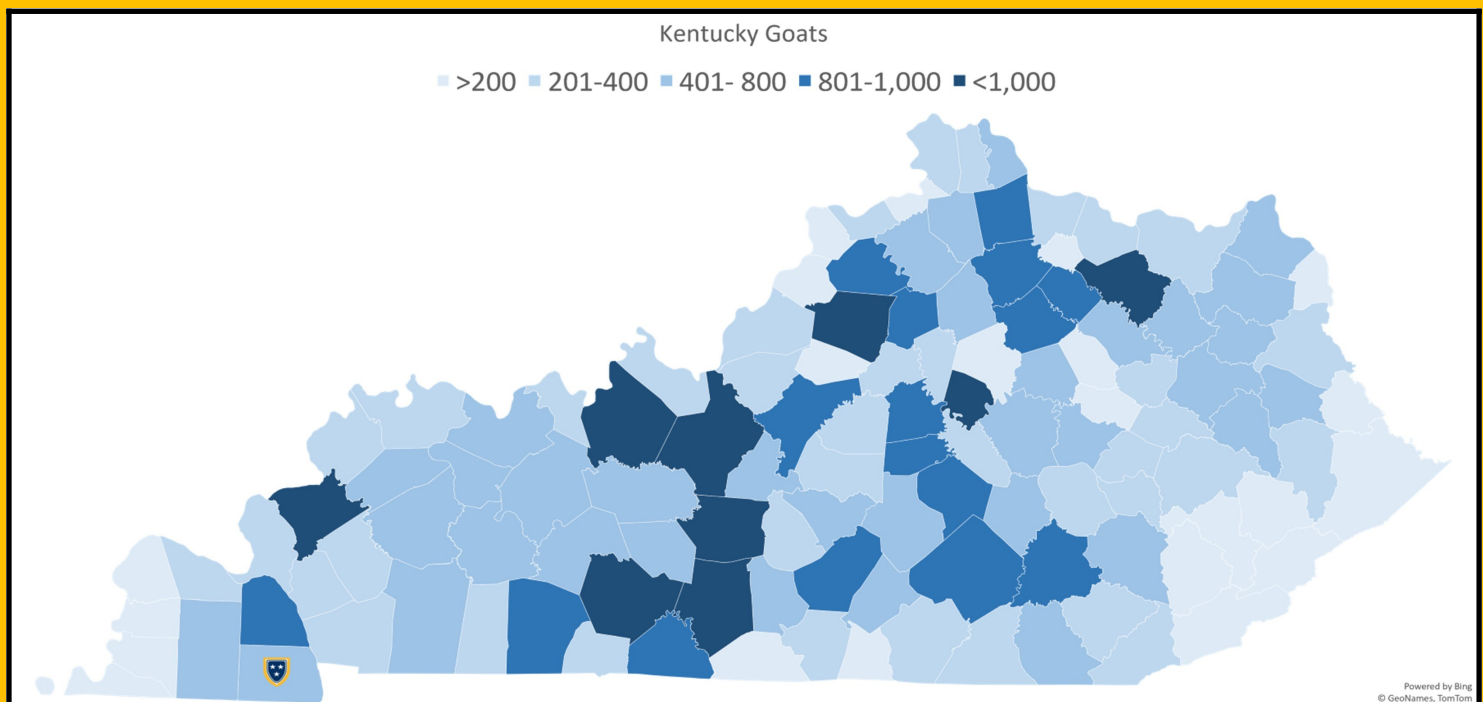


ANIMAL AGRICULTURE IN KENTUCKY

Distribution of Cattle and Calves

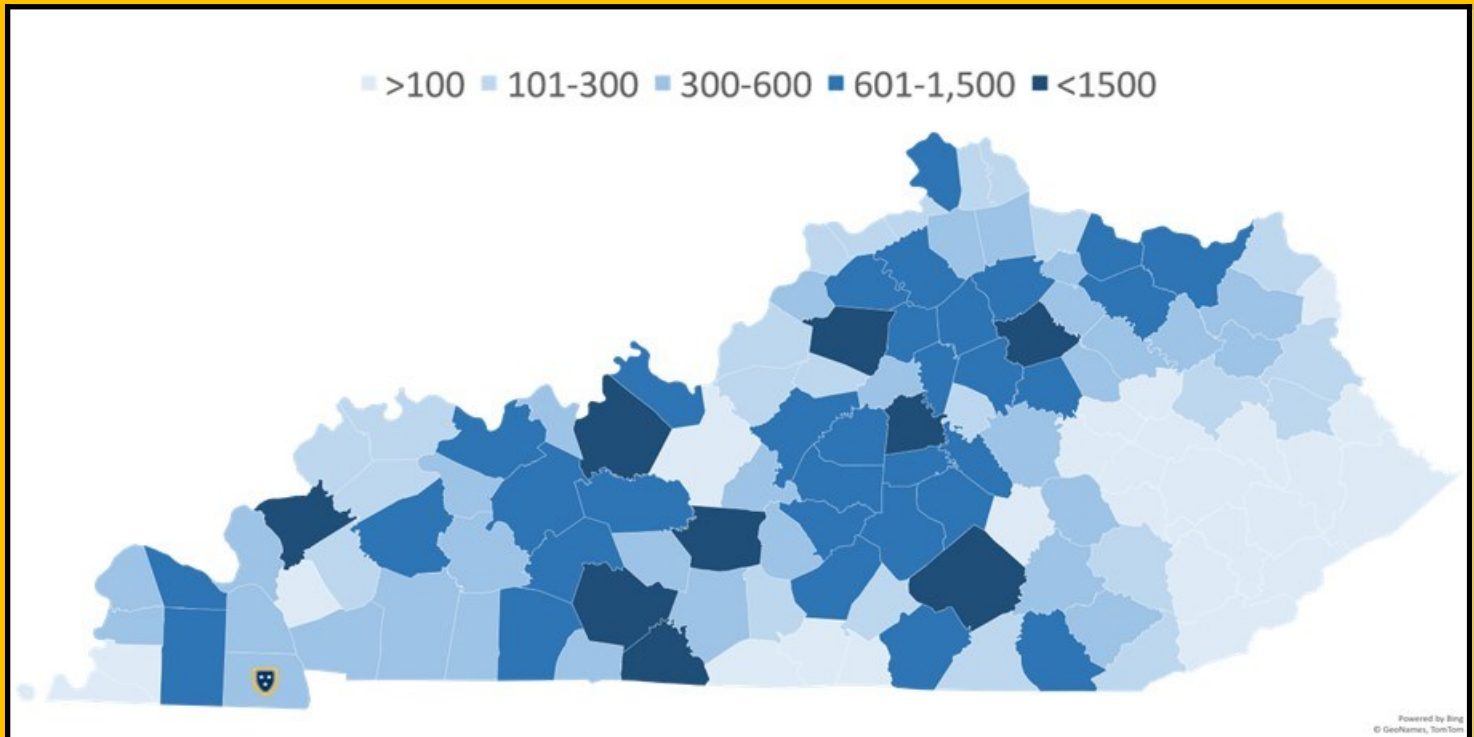


Distribution of Goats

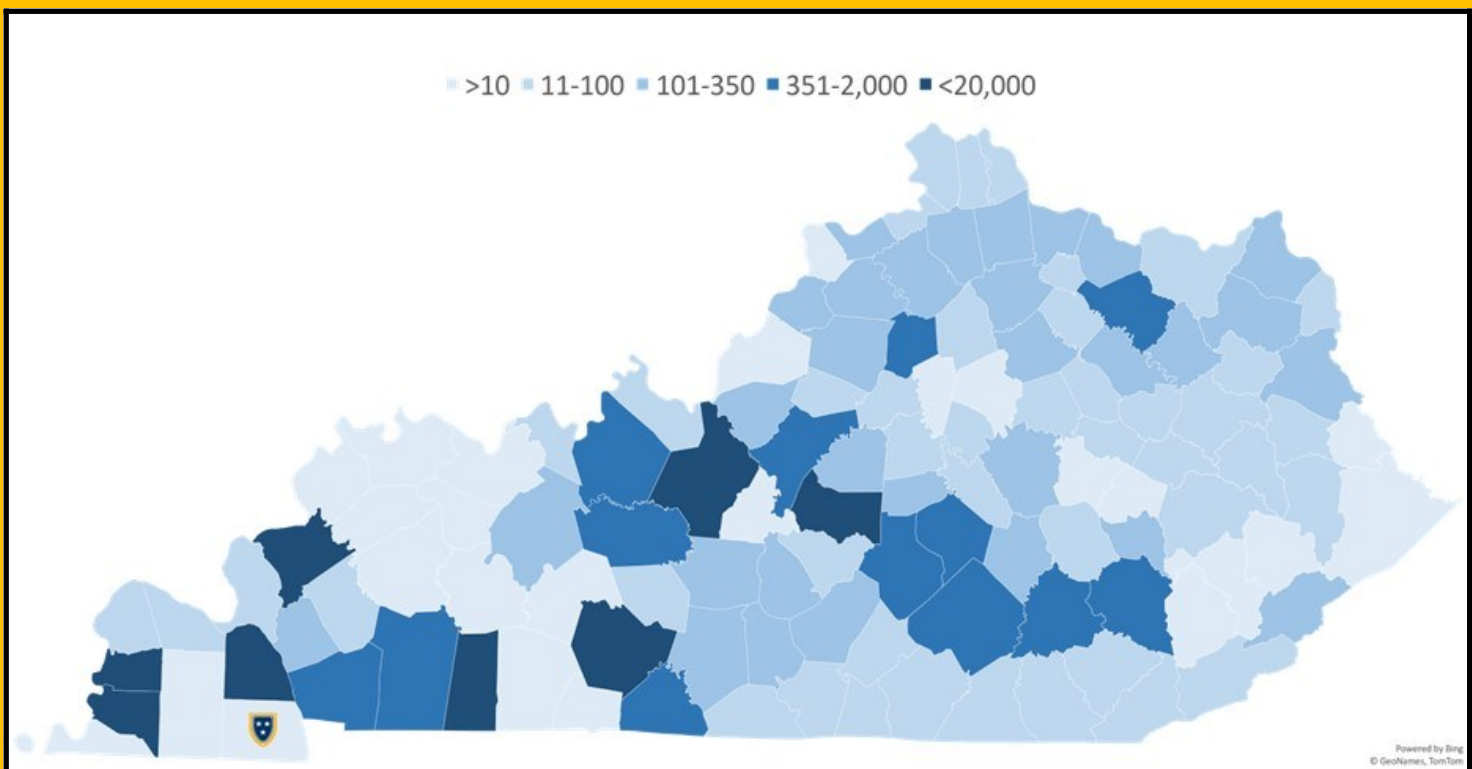


ANIMAL AGRICULTURE IN KENTUCKY

Distribution of Sheep and Lambs



Distribution of Hogs and Pigs



FUTURE VETERINARIAN NEEDS



Veterinary positions will grow by 19.3% between 2016 and 2026, with 704 total openings during that time.




Veterinary Medicine is a “fast growing” occupation in Kentucky and will be for the foreseeable future (American Veterinary Medical Association, 2023).



The shortage of food animal veterinarians available for herd health visits/ consultations, surgery and emergency after hour visits is putting the Kentucky producer’s herds and flocks at risk and presents an animal welfare issue.



In the absence of veterinary consultation, producers may use veterinary pharmaceuticals inappropriately, putting a potentially dangerous product into the food chain. (United States Department of Agriculture, National Institute for Food and Agriculture, 2023, paragraph 10).



“Kentucky Veterinary positions will grow by 19.3% between 2016 and 2026...”

KY VETERINARIAN MEDICAL CONTRACT SPACES

Established in 1951, provides Kentucky residents with access to 164 slots in Auburn University and Tuskegee University Veterinary Schools

Total Costs for 2022 Graduates:



Auburn



Tuskegee



MS State



Lincoln Memorial

Resident Total Tuition

\$107,208

\$187,129

\$111,934

\$189,684

Resident Total Cost

\$235,838

\$313,053

\$222,294

\$326,641

Non-Resident Total Tuition

\$223,036

\$186,899

\$197,838

\$202,616

Non-Resident Total Cost

\$368,448

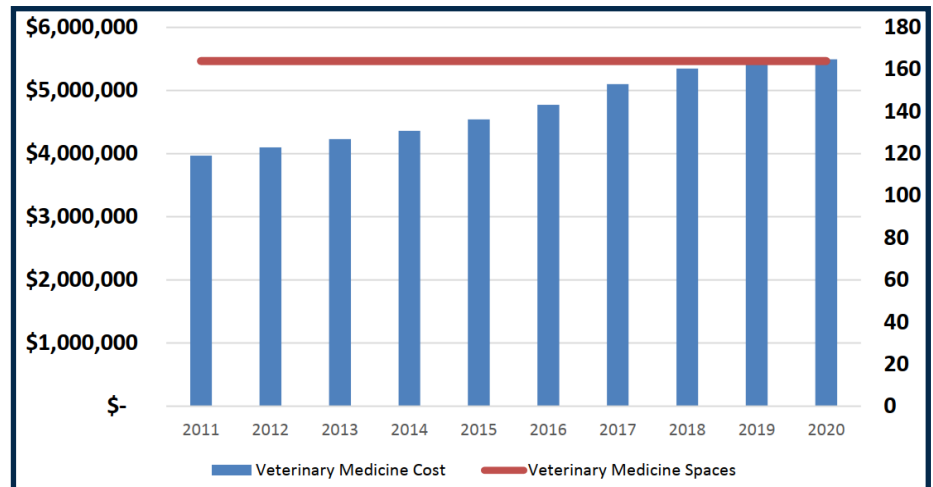
\$313,053

\$320,644

\$243,696

* Mississippi State and Lincoln Memorial Colleges of Veterinary Medicine included for cost comparison.

Cost to send Kentucky students to out of state veterinary schools
\$5,400,000 in 2022 and
\$5,600,000 in 2023



Regional Contracts

1. The current veterinary school agreement is a Regional Contract agreement as opposed to the Academic Common Market Program
2. The important difference between these programs is that the Regional Contract agreement does not depend on the absence of a veterinary school in Kentucky
3. Kentucky can maintain the existing agreement, unaltered, as well as open a vet school in Kentucky

KY VETERINARIAN MEDICAL CONTRACT SPACES

Established in 1951, provides Kentucky residents with access to 164 slots in Auburn University and Tuskegee University Veterinary Schools



38 percent increase in cost per seat from \$24,200 in 2011 to \$33,500 in 2020



Kentucky has a long history of funding the program biannually through the Executive Branch budget bill



An average of 41 spaces per class in the four-year program



164 seats are reserved at Auburn University and 12 seats are reserved at Tuskegee University



While the goal of the program is to subsidize the full difference between the in-state and out-of-state rates, it cannot be guaranteed.

SCHOOLS OF VETERINARY MEDICINE



Approximately half of Kentuckians who benefit from the veterinary contract spaces program at that institution return to Kentucky



There are currently **33 Colleges of Veterinary Medicine** in the United States

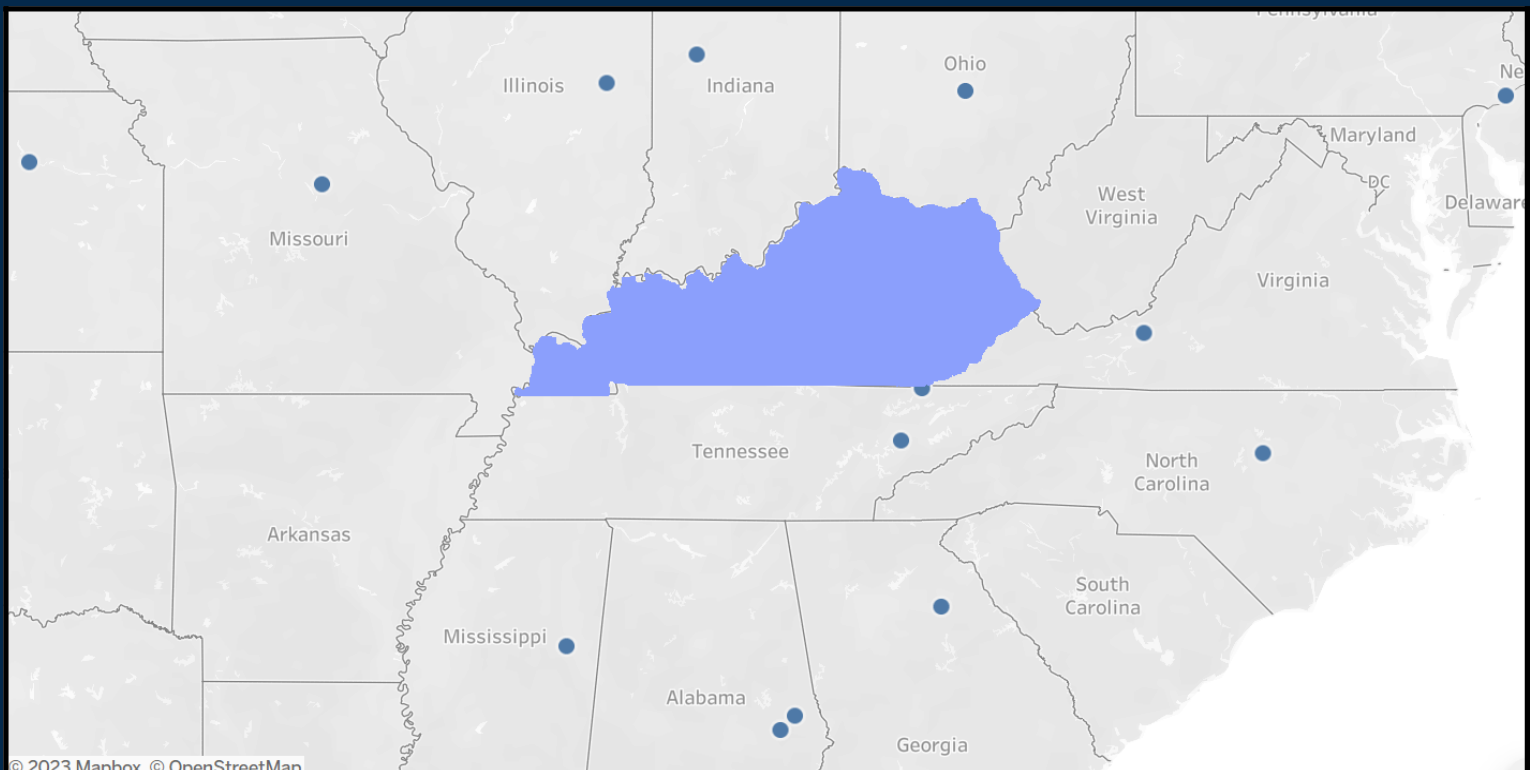


Students in Kentucky are approximately **400 –500 miles from Auburn and Tuskegee Universities**



21 States do not have veterinary schools and each year there is a shortage of seats for students interested in studying veterinary medicine

10,834 applicants for 4,571 seats



© 2023 Mapbox © OpenStreetMap

SCHOOLS OF VETERINARY MEDICINE

2022 veterinary graduates received full-time employment offers at a higher rate than any other graduating class in the past 22 years.

DISTRIBUTION OF NEW GRADUATES RECEIVING OFFERS FOR JOBS OR ADVANCED EDUCATION



VETERINARY SCHOOL APPLICANTS

From Pre-Veterinarian Students...

"It isn't just a passion, it is a dream for most of us. Going through your undergraduate years and spending all the time taking the hard classes and not get accepted into a Veterinary School is very discouraging. Everyone always says, 'follow your dreams,' however that is not possible unless you get accepted."

"Murray has been a great pre-vet program and I could only imagine how great of a vet school they could have..."



"Murray State's Pre-veterinary undergraduate path leads students in the right direction with a tremendous amount of knowledge before ever stepping foot into veterinary school."



Approximately 450 students are currently enrolled in Murray State University's Pre-Veterinary Medicine and Veterinary Technology making it the largest of these programs in Kentucky

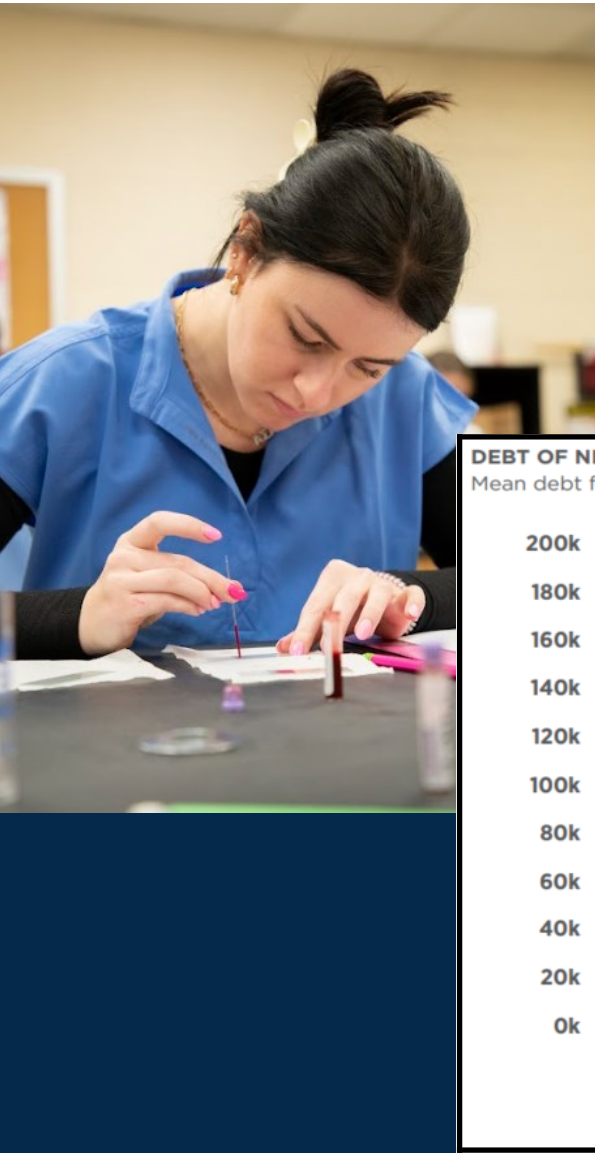


Going to school outside of Kentucky may be unrealistic for many Kentucky residents seeking the financial benefits of **in-state tuition**



The cost of tuition and fees at Auburn's College of Veterinary Medicine has more than tripled in the past 15 years (Dick et al., 2017)

ECONOMICS FOR VETERINARY STUDENTS



\$80,844 mean compensation (all graduates 2022)

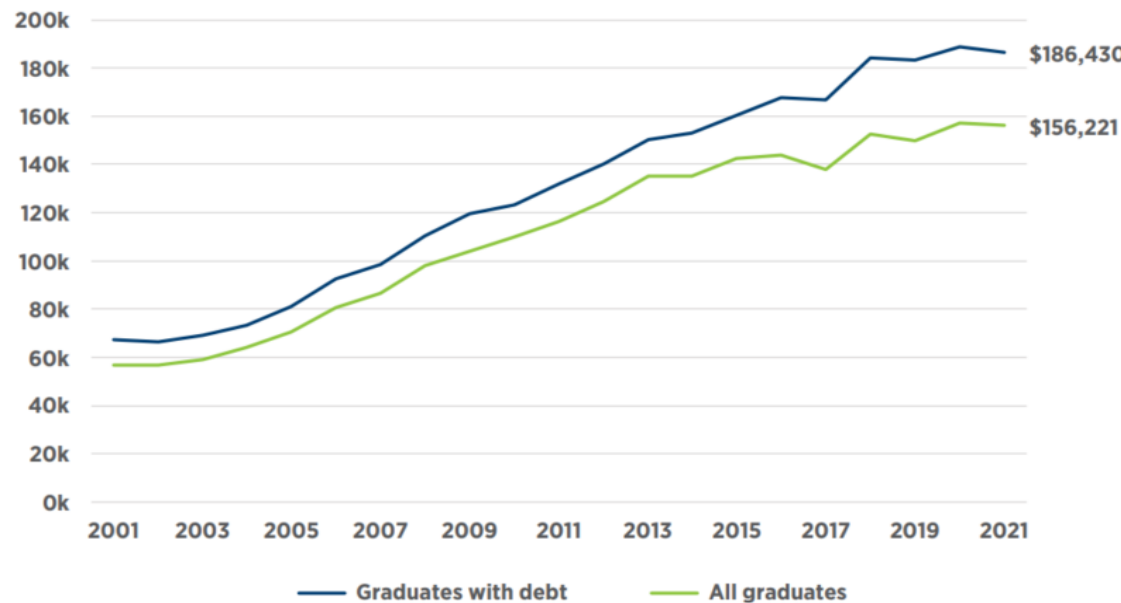
\$186,430 mean debt for students with vet school loans

\$200,000 1 in 3 vet school graduates student loan debt

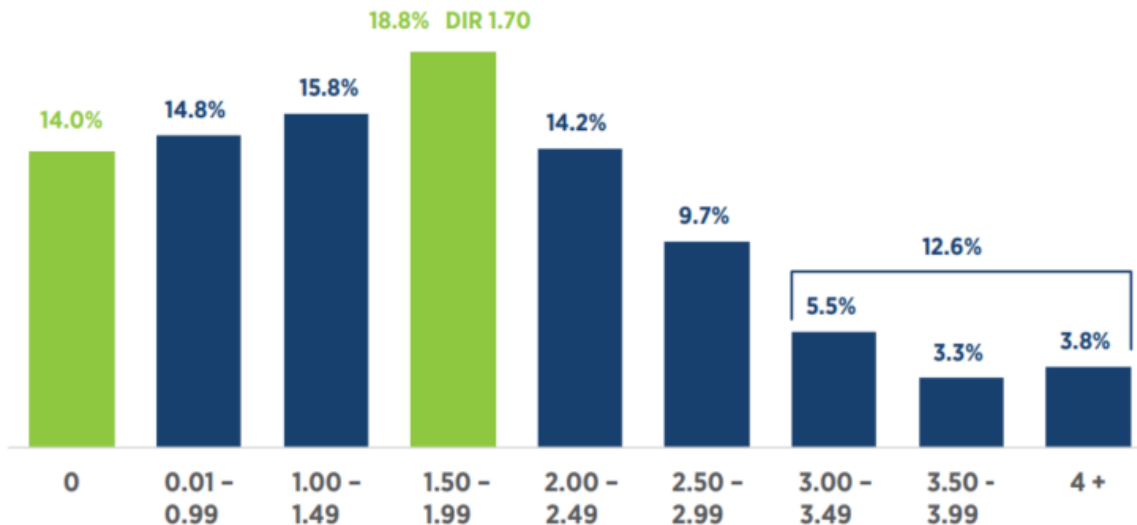
3.00 and up 12.6% of graduates debt to income ratio

DEBT OF NEW GRADUATES

Mean debt for all vs. only those with debt



DEBT-TO-INCOME RATIO (DIR) OF 2021 GRADUATES SECURING FULL-TIME EMPLOYMENT



PROJECTED COST MURRAY STATE UNIVERSITY SCHOOL OF VETERINARY MEDECINE

Murray Construction Costs - 150 students (September 12, 2023)

	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit</u>	<u>Estimated Cost</u>
Teaching & Clinical Facilities Construction				
1 Classroom Building	17,384	SF	\$825	\$14,341,982
2 Office Building/ Student Services	17,200	SF	\$588	\$10,122,009
3 Anatomy Complex	5,594	SF	\$926	\$5,178,979
4 Teaching Surgery	10,240	SF	\$891	\$9,124,642
5 Skills Lab	3,196	SF	\$813	\$2,598,724
6 Field Service/ Ambulatory	0	SF	\$493	\$0
7 Lobby	6,132	SF	\$834	\$5,116,418
8 Equine Teaching Center	0	SF	\$343	\$0
9 Food Animal Teach Center	0	SF	\$443	\$0
10 Mechanical Rooms	<u>5,825</u>	SF	\$580	<u>\$3,377,392</u>
TOTAL	65,573	SF		\$49,860,146
Research Facilities Construction				
11 Lab Building	11,711	SF	\$812	\$9,511,610
12 Mechanical Room	<u>828</u>	SF	\$690	<u>\$571,527</u>
TOTAL	12,539	SF		\$10,083,137
Sitework				
13 Sitework	11	Acre	\$633,750	\$7,168,464
TOTAL COST	78,112	SF		\$67,111,747
Contingency 23%				<u>\$15,435,702</u>
SUBTOTAL				\$82,547,449
A/E Fees and other fees				\$5,887,386.72

PROJECTED COST

\$88,434,835

ECONOMIC IMPACT OF A VETERINARY SCHOOL

Initial Costs

\$89 million cost to build school of veterinary medicine

\$142.4 million in economic output resulting from the construction project

\$36.2 million final demand earnings which represents the change in earnings in the construction industry resulting from the estimated construction expenditures

679 jobs in the construction industry over the period of the construction phase of the project

Ongoing Operation

150 full-time students annually also will have a significant economic impact

\$4.82 million expected to increase tuition receipts

\$6.43 million ($\$4.8 \text{ million} \times 1.3330$) gross output

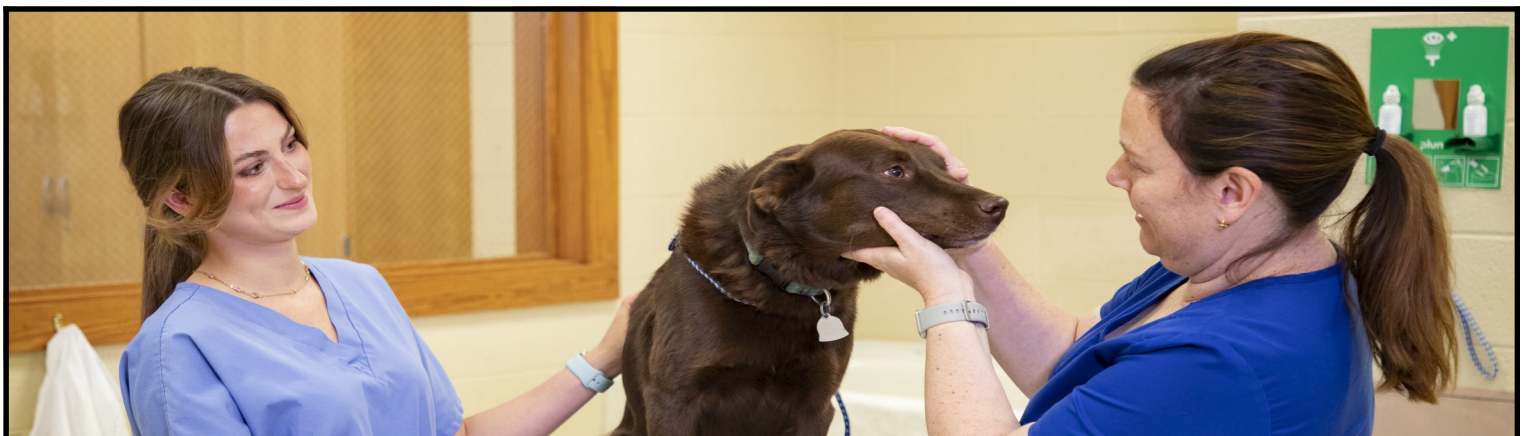
\$4.50 million ($\$4.8 \text{ million} \times 0.9328$) value-added portion of this output

\$2.24 million ($\$4.8 \text{ million} \times 0.4651$) earnings portion of this value added

62.8 jobs ($\$4.8 \text{ million} \times 13.02$) which includes both full- and part-time workers



School of Veterinary Medicine students who earn a Doctor of Veterinary Medicine exert a positive economic impact by employing an average of 10 employees and infusing over \$500,000 into a community.



DISTRIBUTED/CLINICAL MODEL OF EDUCATION

Distributed learning is an instructional model that allows instructor, students, and content to be located in different, noncentralized locations so that instruction and learning can occur independent of time and place.



Real world immersion



Networking & job offers



Tailor student clinical year focus



Student creates their own geography



Industry standard equipment exposure



Clinical partners screen and hire top students



Increased stakeholder engagement in training students



Reduced construction cost (approximately \$150 million)

DISTRIBUTED/CLINICAL MODEL OF EDUCATION



In the past 44 years, 6 new colleges of veterinary medicine have been created in the US, 5 out of 6 of those colleges utilize the distributed model of education.



Core science, anatomy, and pre-clinical skills are taught in traditional college setting during the first two years of study.



The final year of clinical rotations occurs within real-world clinical veterinarian offices where students use industry standard equipment.



Students are not limited to university teaching hospital facility and cases. Students are partnered with veterinary clinics that are specific to their area of interest and location.



The new Schools of Veterinary Medicine in North America (University of Arizona, Texas Tech University, University of Calgary, Lincoln Memorial University, Long Island University, Western University of Health Sciences) and in the United Kingdom (University of Surrey, University of Nottingham, Harper and Keele Veterinary School)



BREATHITT VETERINARY CENTER



Breathitt Veterinary Center is a full service Biosafety Level 1 veterinary laboratory



Murray State University's Breathitt Veterinary Center in Hopkinsville has been designated as a Level 1 laboratory by the USDA National Animal Health Laboratory (NAHLN) system.



Out of 60 diagnostic laboratories nationally in the NAHLN system, the center is now one of 23 state laboratories with Level 1 status and has been a Level 2 laboratory in the NAHLN system since 2005.



Already part of Murray State University Hutson School of Agriculture



BREATHITT VETERINARY CENTER

- ✓ Administrative Services
- ✓ Histopathology
- ✓ Molecular Diagnostics
- ✓ Serology
- ✓ Virology

- ✓ Clinical Pathology
- ✓ Bacteriology / Mycology
- ✓ Pathology
- ✓ Toxicology



VISION OF MURRAY STATE UNIVERSITY SCHOOL OF VETERINARY MEDICINE

Curriculum: 3-year, 9-semester, year-round Distributed Model of Veterinary education program, which allows the core facility to have a smaller building footprint relative to other veterinary medicine programs; years 1 & 2 – preclinical training at the new Murray State facility, year 3 – clinical partnership training with Breathitt Veterinary Center, existing practices, non-profits, and industries

Class Size: up to 70/class for a total of 140 veterinary students on campus (year 1 & 2 students) **Facility:** Focused on lecture halls, skills labs, research labs, and student amenity and support spaces

Location: university-owned land west of the A. Carman Health Technology Center (home of the Veterinary Technology/Pre-Veterinary Medicine Program) on the main farm complex about a mile west of campus, in coordination with:

- Existing Rudolph Equine Education Center and Eldon Heathcott Rodeo Barn located on the west farm complex
- Existing West Farm Center, which houses the university's certified Angus herd and Equine Herd
- Existing North Farm Complex, which houses the university's swine unit, equine quarantine facility, and beef cattle research
- Existing Breathitt Veterinary Center, a veterinary diagnostic laboratory, located in Hopkinsville.
- Existing Eagle Rest Farm, a 534-acre farm and historic cattle ranch in Ballard County.
- Existing Murray State University Hopkinsville Regional Campus

Construction Cost: Approximately \$89 million

Estimated Timeline: Planning – Summer 2025; Begin Construction – Fall 2025; Occupancy – Fall 2027 (assuming Murray receives a legislative appropriation during the 2024 regular session)

Emergency Clinic: Well situated to serve as an emergency clinic for practicing veterinarians in the region and the Commonwealth

LARGE ANIMAL VETERINARIANS AND STUDENT LOANS

- ★ Overall, 66.8% of graduates reporting postgraduate opportunities accepted offers in **private practice**
- ★ **Companion animal exclusive practice** attracted the highest percentage of all graduates at 35.8%
- ★ **Food animal exclusive and food animal predominant practice** together attracted only 2.7% of all graduates
- ★ Full-time positions in **equine practice** were accepted by 1.4% of all graduates

To combat the problem of recent graduates choosing areas of focus other than large animal

- ★ Prioritize placements at large animal veterinary clinics and increase training large animal vets
- ★ Other colleges of veterinary medicine are diversified, but largely focused on pets. MSU has an opportunity to establish itself as the leading large animal school of veterinary medicine
- ★ Murray State University multi-million dollar endowment to incentivize rural veterinary medicine students
- ★ Existing Public Service Loan Forgiveness Program
- ★ Existing Veterinary Medicine Loan Repayment Program
- ★ Murray State University Rural Student Incentive Program

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APPENDIX

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TASK FORCE

Members

Mr. David Beck, President and COO, Kentucky Venues
Mr. Jeremy Buchanan, Executive Director, Purchase Area Development District
Dr. Johanna Choate, Veterinary Faculty, Hutson School of Agriculture, Murray State University
Mr. Seth Clark, Pre-Veterinarian Student, Hutson School of Agriculture, Murray State University
Ms. Sarah Coleman, Executive Director, Kentucky Horse Council
Ms. Nikki Ellis, Executive Director, Kentucky Pork Producers
Dr. Renee Fister, Associate Provost, Murray State University
Dr. Claire Fuller, Dean, Jones College of Science, Engineering and Technology, Murray State University
Ms. Sharon Furches, Second Vice President, Kentucky Farm Bureau
Mr. Jerry Gilliam, Christian County Judge Executive
Mr. Jamie Guffey, Executive Director, Kentucky Poultry Federation
Mr. Daniel Hayden, Program Coordinator, Kentucky Cattlemen's Association
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Dr. Laura Ken Hoffman, Associate Professor, Hutson School of Agriculture, Murray State University
Senator Jason Howell, Chairman, Senate Agriculture Committee
Mr. Stan Humphries, Trigg County Judge Executive
Ms. Tara Joiner, Licensed Veterinary Technologist, Hutson School of Agriculture, Murray State University
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Dr. Brittany Kirby, Assistant Professor, Hutson School of Agriculture, Murray State University
Dr. John Laster, Executive Board, Kentucky Veterinary Medical Association
Mr. Doug Lawson, President/COO, Field and Main Bank
Dr. Brent Mayabb, Global Chief Medical Officer, Royal Canin
Ms. Theresa Nichol, Garnett Farms
Dr. Shea Porr, Associate Dean, Hutson School of Agriculture, Murray State University
Mr. Ronny Pryor, Representative, Tyson Foods
Dr. Debbie Reed, Director, Breathitt Veterinary Center, Murray State University
Representative Steven Rudy, House Majority Floor Leader
Ms. Joanna Shake, Executive Director, Green River Area Development District
Ms. Kristen Stewart, Agriculture Coordinator, Hopkinsville Community College, KCTCS
Dr. Jared Tapp, Veterinarian, Pennyrile Animal Clinic
Mr. Jason Vincent, Executive Director, Pennyrile Area Development District

Co-Chairs:

Dr. Brian Parr, Dean, Hutson School of Agriculture, Murray State University
Mr. Jordan Smith, Executive Director of Government and Institutional Relations, Murray State University

Ex-Officio:

Dr. Robert L Jackson, President, Murray State University
Dr. Tim Todd, Provost and Vice President of Academic Affairs, Murray State University
Ms. Jackie Dudley, Senior Vice President of Finance and Administrative Services, Murray State University

Board Resolution on MSU Veterinary School (1973)

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Thomas P. Norris Student Loan Fund Report, Received

The Thomas P. Norris Student Loan Fund Report was received.

National Defense Student Loan Fund Report, Received

The National Defense Student Loan Fund Report was received.

Executive Session

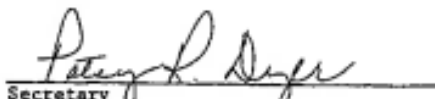
Chairman Doran called for executive session of the Board.

The executive session ended, and the meeting was opened to the public.

Meeting Adjourned

Upon motion by Dr. Howard, seconded by Mr. Mitchell, the meeting was adjourned.


Chairman


Secretary

ADDENDUM
May 3, 1973

School of Veterinary Medicine, Discussed

Mr. E. B. Howton, Chairman of the Department of Agriculture, was present for this portion of the Meeting.

Mr. Howton presented the possibility and procedure for the establishment of a School of Veterinary Medicine at Murray State University.

Dr. Hassell moved that the following resolution be adopted:

WHEREAS, during the last decade the livestock population in the Central part of the United States has increased at the fastest rate of any section in the country, and

WHEREAS, there is a direct relationship between the increase in the population of livestock and animal diseases, and

WHEREAS, disease is the greatest deterrent to profitable livestock farming, and

WHEREAS, there is a rapid increase in the concentration of people in the Jackson Purchase and the surrounding area and a direct relationship also exists between the rate of livestock diseases and human diseases, and

WHEREAS, Murray State University is conveniently located in the area where the rapid increase in livestock farming is being realized, and

WHEREAS, Murray State University is recognized for its emphasis in agricultural education and related services, and

WHEREAS, there is no school of veterinary medicine in this region where a shortage of veterinarians exists, and

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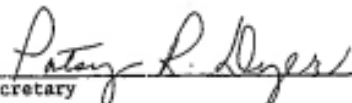
WHEREAS, only a small number of qualified Kentucky applicants are being admitted to schools of veterinary medicine outside the Commonwealth of Kentucky,

NOW THEREFORE, BE IT RESOLVED that the Murray State University Board of Regents strongly recommends that a school of veterinary medicine be established at this University, and

BE IT FURTHER RESOLVED that the state administration and related agencies be urged to provide their support for the establishment of a school of veterinary medicine at Murray State University.

Mr. Springer seconded and the roll was called on the adoption of the motion with the following voting: Dr. Hassell, aye; Dr. Howard, aye; Mr. Mitchell, aye; Mr. Neale, aye; Mr. Springer, aye; Mr. Waterfield, aye; Mr. Doran, aye.


Chairman


Secretary

Board Resolution on MSU Veterinary School (2023)

Murray State University Board of Regents Resolution

Hutson School of Agriculture, School of Veterinary Medicine Proposal

WHEREAS, the Commonwealth of Kentucky currently does not have a School of Veterinary Medicine and spent \$5.4 million during Fiscal Year 2022-23 and \$5.6 million in Fiscal Year 2023-24 to fund a total of 168 veterinary slots for Kentucky students with out-of-state universities; and

WHEREAS, in the United States there are only 32 veterinary colleges accredited by the American Veterinary Medical Association (AVMA) and, based on statistics collected by the AVMA, only approximately 86,000 veterinarians are currently practicing in the United States; and

WHEREAS, the United States and Kentucky currently do not have a sufficient number of veterinarians to meet the growing needs of agricultural, public health and large and small animal owners; and

WHEREAS, the U.S. Bureau of Labor Statistics (BLS) reports that there are 86,300 veterinarians in the United States and this occupation is expected to grow by over 19% by 2031, producing a needed employment change of 16,800 veterinarians for a total of 103,100. Furthermore, the BLS reports a total of 122,800 veterinarian technologists/technicians are working today and the field is expected to grow by 20% by 2031 to 146,900; and

WHEREAS, per the American Association of Veterinary Medical Colleges (AAVMC), Colleges/Schools of Veterinary Medicine accept approximately 4,500 new, first-year students each year from a pool of over 10,000 applicants. Approximately 70 students from Kentucky are accepted each year to out-of-state veterinary schools. Currently, there are 38 seats at Auburn University and four seats at Tuskegee University for Kentucky residents; and

FURTHERMORE, per the AAVMC, for the 2021-22 school year, "A total of 10,834 qualified applications [were] received by colleges and schools throughout the system. That represents a 5.5% increase over last year's cycle, when a total of 10,273 applicants applied for admission to the class that matriculated this year." Over the past several years, the number of applications has grown about six to seven percent year over year."

Per the AAVMC, "Total DVM student enrollment at the U.S. College of Veterinary Medicine is 14,503. On average, applicants apply to four to five colleges of veterinary medicine per cycle. The national applicant to first year seat ratio is 2.4 and is calculated using the number of unique applicants in the pool, by the total number of seats offered across institutions. The total number of applicants to the Class of 2026 was 10,834." The number of first-year Doctor of Veterinary Medicine students accepted from Kentucky was approximately 70.

WHEREAS, the Hutson School of Agriculture has the estimated largest pre-veterinary medicine/veterinary technology enrollment of any university in Kentucky, with over 425 enrolled students for fall 2022; and

WHEREAS, the Hutson School of Agriculture's Pre-Veterinary/Veterinary Technology programs have been AVMA-accredited since 1986, one of only three fully-accredited programs in the state of Kentucky. The programs have a unique curriculum instructed in the health care of cattle, horses, pigs, dogs, cats, laboratory animals and exotics. The curriculum is designed for students to gain acceptance into a veterinary school or prepare to take the VTNE to be a licensed Veterinary Technician; and

WHEREAS, the Hutson School of Agriculture is home to the A. Carman Animal Health Technology Center, located on Murray State's West Farm in Calloway County, and is equipped with state-of-the-art equipment and supplies to prepare students for a career in the field of veterinary medicine, including multiple laboratories, pharmacy, surgery suite and the Animal Health program, is a very active and strong academic area at Murray State University where students are provided with a great foundation that will

help prepare them for entering the workforce upon graduation. With any of the career routes students decide to pursue, coursework is designed to provide valuable hands-on applications, in addition to the didactic teaching; and

WHEREAS, the Breathitt Veterinary Center (BVC) at Murray State University, under the direction of the Hutson School of Agriculture, is a nationally preeminent animal disease diagnostic laboratory dedicated to protecting the invaluable assets of Kentucky's equine, livestock and poultry industries and is housed in Christian County, Kentucky; and

WHEREAS, the BVC is the only Level I Laboratory Status designated by the USDA National Animal Health Laboratory (NAHLN) system and one of only 60 laboratories in the United States and one of only 23 with Level I status; and

WHEREAS, the Breathitt Veterinary Center is fully accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD) for all species and would serve as an important teaching/clinical laboratory for a school of veterinary medicine; and

WHEREAS, Calloway County and Christian County are both conveniently located in the heart of Kentucky's agricultural industry, where a rapid increase in livestock farming, poultry producers etc. are being realized; and

WHEREAS, in 1973 the Murray State University Board of Regents unanimously passed a Resolution to strongly recommend that a School of Veterinary Medicine be established at Murray State University and in fifty years no progress by the Commonwealth of Kentucky has been made toward establishing a school; and

NOW, THEREFORE, BE IT RESOLVED that the Murray State University Board of Regents, upon the recommendation of the President of the University, create a Task Force to begin a feasibility study with the purpose of examining the statewide shortage of veterinarians with a special emphasis on large animal veterinarians in the Commonwealth and to work toward the development of a School of Veterinary Medicine at Murray State University in order to address this important endeavor; and

BE IT FURTHER RESOLVED that Murray State University will work with the General Assembly, Governor; Commissioner of Agriculture; Council on Postsecondary Education; Kentucky's federal congressional delegation and state, local and federal agencies, among others, in order to seek all available financial support through state appropriations and state and federal grants, coupled with raising private and other University funding, in order to build a School of Veterinary Medicine at Murray State University.


Leon Owens – Chair, Board of Regents


Virginia Gray – Vice Chair, Board of Regents


Robert L. Jackson – President, Murray State University

Committee Action: Approved, Academic Excellence and Scholarly Activities Committee.

Board Action: Approved.

ECONOMIC IMPACT DETAILED REPORT

Economic Impact: Construction and Operation of a Veterinarian School in Murray, KY

The purpose of this study is to determine the economic impact on both the micropolitan area surrounding Murray, KY and the entire state of Kentucky's economy that will come from the construction and operation of a facility that would be required for a veterinarian school. The analysis was performed for an expected capital expenditure of \$89,000,000 at the beginning of the project. This impact was determined using state level multipliers. In addition, an impact was calculated for the ongoing operation of the school in the micropolitan area of Murray, KY.

The analysis uses the RIMS II impact modeling approach which estimates both direct and indirect effects resulting from the approximately \$88,434,835 in construction costs that would be circulated in the economy. The Input-Output Modeling System (RIMS II) uses multipliers established by the Bureau of Economic Analysis and the total construction costs of the facilities at Murray State University to estimate the economic impacts. Using the RIMS II model, the final demand of the construction phase is estimated to be \$142,434,500 which represents the economic output resulting from the construction project. The final demand earnings which represents the change in earnings in the construction industry resulting from the estimated construction expenditures is estimated to be \$36,227,000 and the construction project leads to an increase of 679 jobs in the state's construction industry over the period of the construction phase of the project.

The ongoing operation of the veterinarian school that will serve 150 full-time students annually also will have a significant economic impact. The program is expected to increase tuition receipts by just over \$4.8 million and attract students from outside the area as well. Using the RIMS II multipliers gross output is expected to increase by \$6.43 million ($\$4.8 \text{ million} \times 1.3330$). This estimate includes the \$4.8 million increase in tuition receipts. The value-added portion of this output is \$4.50 million ($\$4.8 \text{ million} \times 0.9328$). The earnings portion of this value added is \$2.24 million ($\$4.8 \text{ million} \times 0.4651$). Employment, which includes both full- and part-time workers, is expected to increase by 62.8 jobs ($\$4.8 \text{ million} \times 13.02$).

Economic Impact Analysis Using The RIMS II System:

For this study, we selected the RIMS II system from the Bureau of Economic Analysis (BEA), which provides Type I and Type II multipliers. Type I multipliers account for both direct and indirect impacts that occur due to a change in final demand. The direct impact refers to the initial purchase of inputs by the industry affected by the final-demand change. This is often referred to as the direct effect in Input-Output (I-O) models, with the changes in output of supporting industries being referred to as the indirect effect. However, in the context of RIMS II, the term 'direct effects' is specifically used to describe the spending on intermediate inputs by the initially affected industry during the first round of spending. This definition aligns with the terminology used in BEA's national I-O accounts.

The indirect impact pertains to the subsequent rounds of input purchases made by supporting industries. The combined direct and indirect impacts are commonly referred to as the interindustry effect. In addition to accounting for the interindustry effect, Type II multipliers also account for the induced impact of a final-demand change. This induced impact relates to the spending habits of workers whose earnings are affected by a final-demand change, and is often referred to as the household-spending effect.

ECONOMIC IMPACT DETAILED REPORT

Impact of Establishing and Operating a Veterinarian School at Murray State University:

Murray State University is in the process of planning the establishment and operation of a veterinary school, projected to cater to 150 full-time students every year. The university aims to demonstrate the significance of this new degree program to the local community by calculating its potential economic impact on the region. Expected to boost tuition fees by slightly above \$4.8 million, the program is likely to attract students from beyond the local area as well. One way to gauge the output of the new program is through the increase in tuition fees. However, a more comprehensive method might involve accounting for all the university's operational expenses for the program, excluding investments in buildings, equipment, and software. This data, however, is not readily available since the program is yet to be launched. It's worth noting that no other local universities have plans to introduce a similar program.

To undertake the economic impact analysis, several determinations are made: Firstly, the change in final demand is computed, which is the anticipated \$4.8 million increase in tuition fees. Given that the program is not expected to divert students from other local universities, there's no need to adjust this increase to account for potential tuition loss at other local institutions. As the majority of new students are projected to originate from outside the local area, the increase does not require any reduction to omit the procurement of educational services by local residents, provided Type II multipliers are utilized.

The industry selected for the final-demand change is the junior colleges, colleges, universities, and professional schools industry from the benchmark series, as it most closely aligns with the available industry details. The final-demand region is identified as the Murray, KY Micropolitan Statistical Area, an appropriate choice for utilizing Type II multipliers as the majority of university employees are expected to spend their earnings within the local area.

Final-demand multipliers:

Table 1 below shows the Type II final-demand multipliers for universities in the Murray, KY Micropolitan Statistical Area. Using these multipliers, as shown in Table 2 gross output is

Table 1. Type II Final Demand Multipliers for Junior Colleges, Colleges, Universities and Professional Schools in the Murray, KY Micropolitan Area.

Industry	Output	Value Added	Earnings	Employment (jobs/\$1 million)
Junior Colleges, Colleges, Universities and Professional Schools	1.333	0.9328	0.4651	13.0813

expected to increase by \$6.43 million (\$4.8 million x 1.3330). This estimate includes the \$4.8 million increase in tuition receipts. The value-added portion of this output is \$4.50 million (\$4.8 million x 0.9328). The earnings portion of this value added is \$2.24 million (\$4.8 million x 0.4651). Employment, which includes both full- and part-time workers, is expected to increase by 62.8 jobs (\$4.8 million x 13.02).

ECONOMIC IMPACT DETAILED REPORT

Table 2. Final Demand Estimates

Type of Impact	Quantity of Impact
Final Demand Output	\$6,430,000
Final Demand Value Added	\$4,500,000
Final Demand Earnings	\$2,240,000
Final Demand Employment	62.8 jobs

Direct-effect multipliers:

Assuming the availability of an estimate for the rise in earnings and employment for full and part-time university staff, we can utilize direct-effect multipliers to perform the analysis. Let's say the university plans to employ 7 local personnel specifically for the academic program. These employees are projected to have an annual income of \$1,200,000, which includes an estimated \$400,000 for janitorial services, maintenance, and repair.

Table 2 presents the Type II direct-effect multipliers for universities in Murray. By applying these multipliers, the total earnings in the region are predicted to increase by \$1,459,680 ($\$1,200,000 \times 1.2164$). This projection includes the \$1,200,000 in wages to be paid to the new academic program-related university employees. Moreover, the total employment in the region is anticipated to grow by 14.28 positions ($12 \text{ positions} \times 1.19$), including the 12 new positions at the university. These projections vary slightly from those calculated with the final-demand multipliers, stemming from differences in the relationships between output, earnings, and employment in the provided information compared to the relationships in RIMS II.

Impact of Capital Expenditure on Murry State University Vet School For Kentucky:

The Bureau of Economic Analysis (BEA) provides a tool known as the Regional Input-Output Modeling System (RIMS II version 3.2), which is employed in this study to gauge the economic implications of the establishment of the Murray State University Vet School in its vicinity. This model utilizes state and local personal income data, along with national input-output accounts data, to examine the ripple effect of one industry's production on others in the economy, and to determine the number of jobs that the industry generates.

The model delivers final-demand multipliers for output, earnings, and employment. These multipliers serve to quantify the economic repercussions of shifts in final demand, earnings, or employment within the region's economy. The selection of the appropriate multiplier hinges on the availability of initial change estimates in final demand, earnings, and employment. If all necessary information is readily available, different multipliers can be applied and the results can be juxtaposed for accuracy, ensuring consistency in all impact estimates.

RIMS II presents several advantages: (i) the ease of access to primary data sources allows for the estimation of regional multipliers without resorting to costly surveys; (ii) the depth of industrial detail reduces the likelihood of aggregation errors; (iii) multipliers can be compared across different areas based on a uniform set of estimating procedures applied nationwide; and (iv) multipliers are updated to mirror recent local-area wage and salary as well as personal income data.

ECONOMIC IMPACT DETAILED REPORT

Below are the RIMS II multipliers for the construction industry for Calloway County. The Construction multipliers were selected since the Capital Improvement Program includes capital construction.

Table 3. RIMS II Construction Multipliers for Kentucky*:

Final-Demand Output Multiplier:	1.6757
Final-Demand Earnings Multiplier:	0.4262
Final-Demand Employment Multiplier:	7.9895

*Determined by Bureau of Economic Analysis

This segment of the study aims to assess the financial implications of constructing a facility for the Veterinarian School in Murray, Kentucky, on the state's economy. The analysis employs the RIMS II impact modeling method, which calculates both direct and indirect effects arising from an estimated \$89,000,000 in construction costs infused into the economy. The Regional Input-Output Modeling System (RIMS II) utilizes multipliers provided by the Bureau of Economic Analysis, in conjunction with the total construction costs of the facilities at Murray State University, to gauge the economic impacts. The following estimates are derived using the RIMS II model:

Table 4. Final Demand Estimates for the Construction of the Facilities

Type of Impact	Quantity of Impact
Final Demand Output	\$142,434,500
Final Demand Earnings	\$36,227,000
Final Demand Employment	679.10 (jobs created during the construction phase)

The final demand of the construction phase is estimated to be \$142,434,500 which represents the economic output resulting from the construction project. The final demand earnings which represents the change in earnings in the construction industry resulting from the estimated construction expenditures is estimated to be \$36,227,000 and the construction project leads to an increase of 679 jobs in the state's construction industry over the period of the construction phase of the project.

ECONOMIC IMPACT DETAILED REPORT

Glossary

Final-Demand Construction Output (RIMS II): the basic multiplier from which all the other RIMS II multipliers are derived. Multiplied by the construction expenditures this will give the economic output resulting from the veterinarian school construction.

Final-Demand Construction Employment (RIMS II): indicates the change in employment in the construction industry resulting from a \$1 million expenditure in the construction industry.

Final-Demand Construction Earnings (RIMS II): indicates the change in earnings in the construction industry resulting from the estimated construction expenditures.

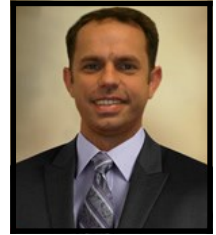
Multipliers: attempt to estimate how much a one-time or sustained increase in economic activity in a particular region will be supplied by industries located in that region; they account for interindustry relationships within regions.

References

U.S. Department of Commerce, Bureau of Economic Analysis- <https://www.bea.gov/resources/methodologies/RIMSII-user-guide>

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