

Establishing a College of Veterinary Medicine in South Carolina at **CLEMSON**

Feasibility Study, January 2023

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CLEMSON UNIVERSITY

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INTRODUCTION

There has never been a better time to establish a new college of veterinary medicine.

1. There is unprecedented growth of the human-animal bond and changing face of animal agriculture
2. Novel models of education are making establishment of colleges more economically feasible and sustainable
3. Large investments of money, both private and public, into animal health sector, primarily companion animal and veterinary services, are creating new opportunities for partnerships in education
4. There are diverse job

HIGHLIGHTS



National demand
for Veterinarians



New sustainable
models of
education



Unprecedented
growth in
animal health

BACKGROUND ON VETERINARY MEDICINE

Today, veterinarians are instrumental in companion animal care, food safety, food security, stem cell research, gene therapy, vaccinology, zoonotic disease research, bioterrorism protection, and a large cadre of specialty services, just to mention a few. Over the past 50 years the face of the profession has expanded from the traditional agriculturally based practitioner working in rural communities, to dog and cat veterinarians that practice in urban or suburban areas.

The need for veterinarians has never been greater.

The American Association of Veterinary Medical Colleges (AAVMC) has indicated that the shortage of veterinarians is ‘having a significant impact on access to healthcare of animals and the wellbeing of the veterinary healthcare team’ AAVMC July 2022. At writing, there were estimated 5,058 veterinary job openings on the AVMA Career Center website, which does not even reflect most corporate owned veterinary openings. As an example, a large national veterinary hospital chain, Banfield, has indicated that they could hire an additional 1,000 veterinarians immediately. Recent research conducted by Dr. James Lloyd with Animal Health Economics indicated that we are facing a dire veterinary shortage, one in which 75 million pets will be without care by 2030 if we don’t produce more veterinarians, which equals a shortage of nearly 15,000 veterinarians.

The need for large animal practitioners is being felt acutely by both government agencies and the rural farmers. Veterinarians in rural communities not only provide service, but they are economic engines for their communities. **In 2015, the Center for Animal Health in Appalachia conducted a study that revealed the need for 1,907 veterinarians across the 420 counties that make up the Appalachian footprint, which, at that time, equaled an estimated economic loss of \$621 million and 15,256 jobs.** Nationwide federal loan forgiveness programs are designed to incentivize new graduates to practice in designated food animal veterinary shortage areas. In fact, right now, South Carolina has 26 Veterinary Medicine Loan Repayment Program (VMLRP) counties.

“ We are facing a dire veterinary shortage, one in which 75 million pets will be without care by 2030 if we don’t produce more veterinarians.

*Characterizing the Current US Employment Market for Veterinarians – June 2019 James W. Lloyd, DVM, PhD





SOUTH CAROLINA NEEDS MORE LARGE ANIMAL VETERINARIANS TO SUPPORT ANIMAL AGRICULTURE

Animal agriculture is a significant contributor to the economy of South Carolina, with livestock and poultry production being some of the primary contributors. A 2015* study reported that the agriculture cluster contributed \$24.8 billion to South Carolina's economy each year. The 2017 National Agricultural Statistics Service (NASS) study states that 64% of all direct farm sales in South Carolina were from animal agriculture.

A thriving animal agriculture economy is dependent upon an adequate number of veterinarians. Yet, there is an extreme veterinary workforce shortage which has broad animal agricultural, public health and societal impacts. Veterinarians not only supply herd health and individual care, but monitor, diagnose and treat for zoonotic diseases, those diseases transmitted from animal to human, and they play an integral role in ensuring the safety of animal-origin foods.

Additionally, the US and South Carolina have inadequate capacity to respond to animal diseases that cause devastating economic impacts, such as African Swine Fever, Foot and Mouth or Highly Pathogenic Avian Influenza. Veterinarians play an integral role in defense, protecting our food security.

SOUTH CAROLINA SPECIES DISTRIBUTION

POULTRY



Total Estimated Number:
4,332 Farms

Poultry make up half of all agriculture in South Carolina.

HORSES



Total Estimated Number:
73,600

CATTLE



Total Estimated Number:
326,114

SHEEP & GOAT



Total Estimated Number:
53,351

PIG



Total Estimated Number:
213,769

DOG



Total Estimated Number:
1,324,011

CAT



Total Estimated Number:
1,023,903

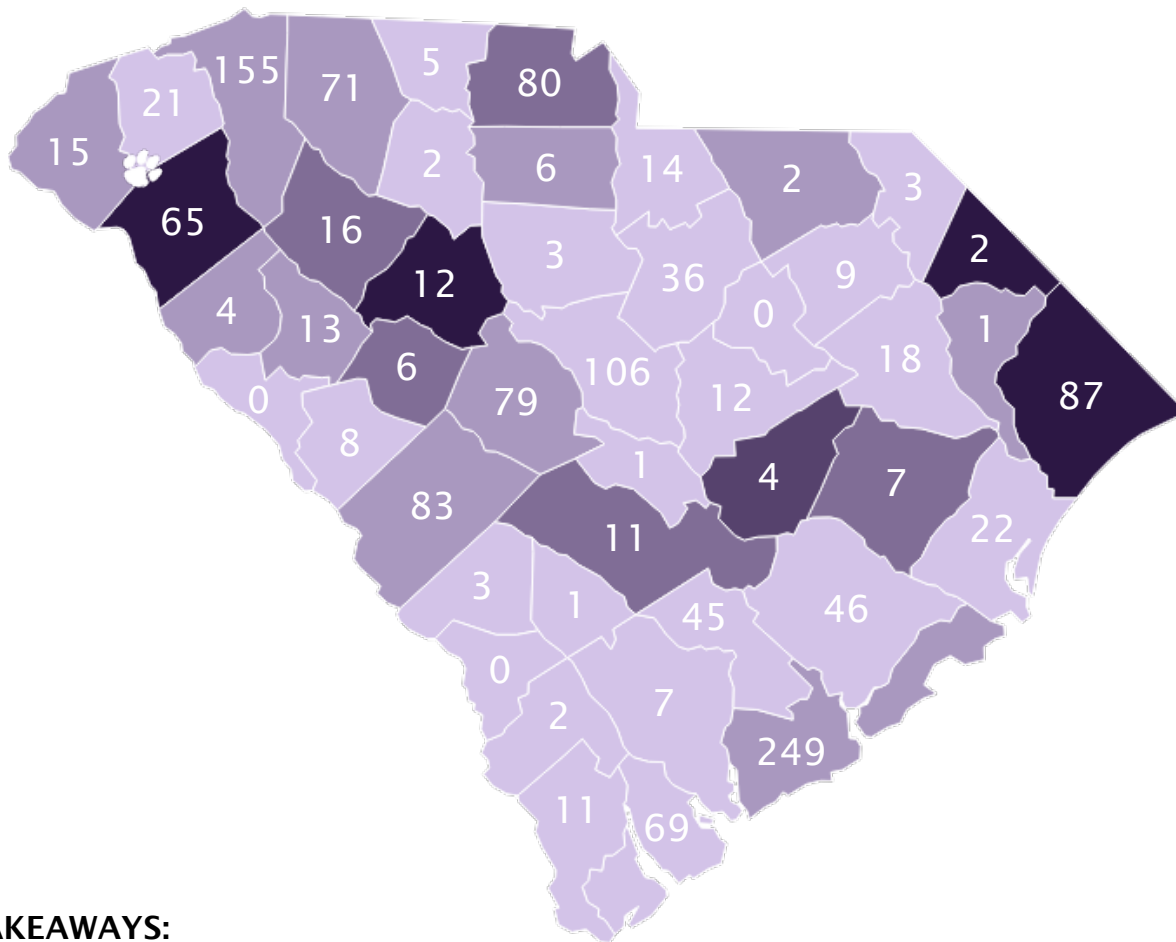


DISTRIBUTION OF LIVESTOCK & VETERINARIANS IN SOUTH CAROLINA

Total estimated Number of Livestock = 597,566

Total Estimated Number of Licensed South Carolina Veterinarians = 1,412*

*Includes both active and retired veterinarians with current license as of 2021



KEY TAKEAWAYS:

- **33% of South Carolina counties have less than 5 veterinarians**
- **48% of South Carolina counties have less than 10 veterinarians**
- **January 2023** analysis estimated that only 67.6% of veterinarians licensed in SC were still actively practicing and 12% of those veterinarians actively practicing are over 60.**
- Livestock numbers include Cattle, Hogs & Pigs, Sheep & Lambs, Goats, & Poultry Farms.
 - Important to note that equine numbers are not included.
 - Important to note that actual individual poultry count is not included.
- Veterinarians per county estimated by counting only licensed veterinarians with SC addresses in each county.

Data Sources: 2017 NASS Livestock Report & Clemson LPH from the Board of Vet Examiners

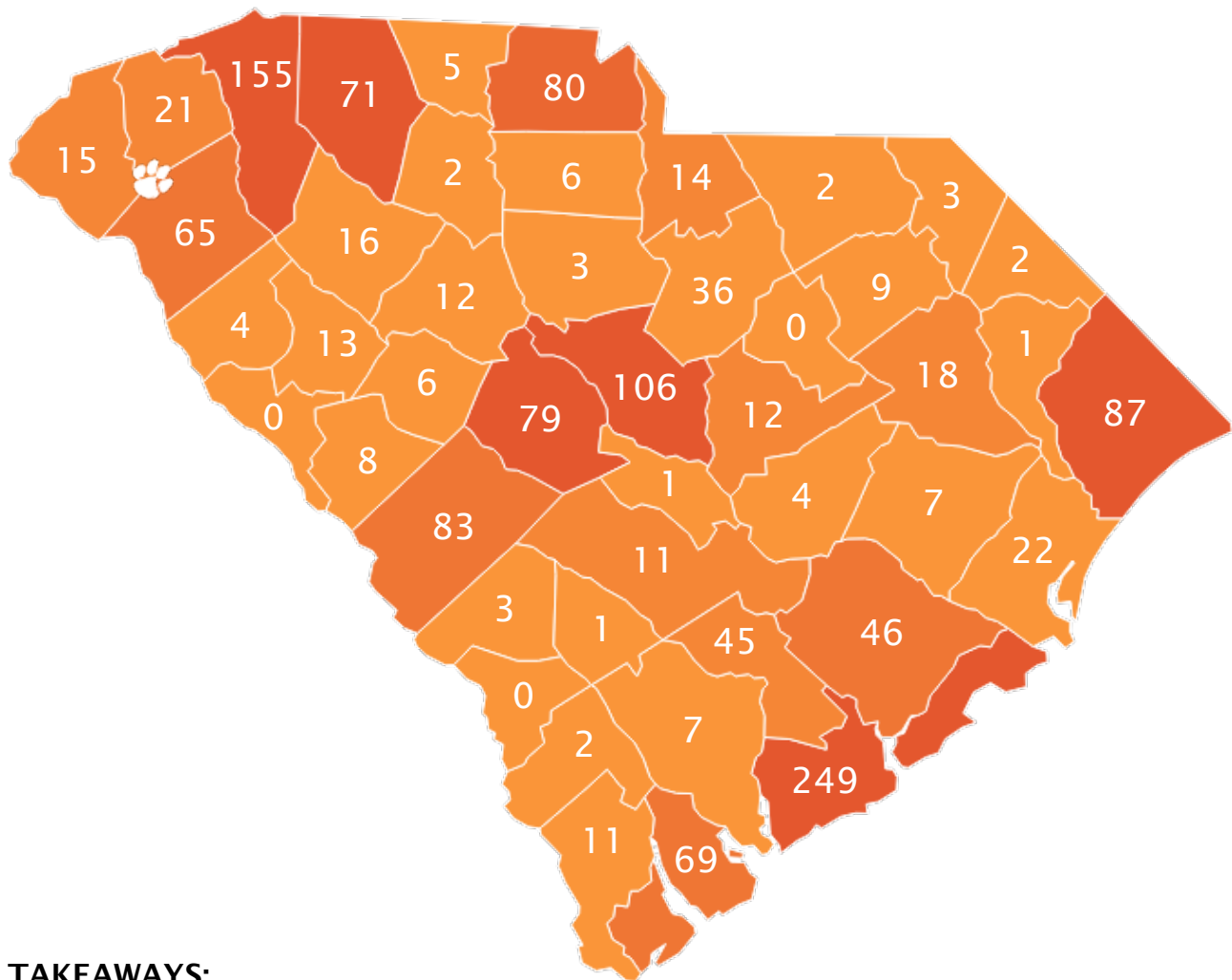
**National Center for the Analysis of Healthcare Data

DISTRIBUTION OF PETS & VETERINARIANS IN SOUTH CAROLINA

Total estimated Number of Dogs & Cats = 2,347,914

Total Estimated Number of Licensed South Carolina Veterinarians = 1,412*

*Includes both active and retired veterinarians with current license as of 2021



KEY TAKEAWAYS:

- 33% of South Carolina counties have less than 5 veterinarians
- 48% of South Carolina counties have less than 10 veterinarians
- January 2023 analysis** estimated that still actively practicing and 12% of those veterinarians actively practicing are only 67.6% of veterinarians licensed in SC were over 60.
- Veterinarians per county estimated by counting only licensed veterinarians with SC addresses in each county.
- Pet numbers include Dogs & Cats

Data Sources: 2017 NASS Livestock Report & Clemson LPH from the Board of Vet Examiners

**National Center for the Analysis of Healthcare Data

PET INDUSTRY

Fueled by the ever-growing human-animal bond, the U.S. pet industry has grown over the past few years from a \$70B industry to nearly \$123.6B in spending for 2021 (American Pet Products Association). A recent Morgan Stanley report¹ estimated the pet care industry inflecting to an 8% topline compound annual growth rate (CAGR), reaching \$275 billion in 2030, with the most important sector of growth being in pet health, with **veterinary care being the fastest growing segment**. Recent AVMA surveys² have also revealed that over 75% of households view their pet as family, and they are willing to spend money as such to deliver the highest quality care possible.

In sum, pet adoptions are up, pets are living longer, pet visits are up, standards of care are continuing to increase, and people are willing to spend more on their pets.

Total US Pet Industry Expenditures	
	2021 Estimate \$
Pet Food & Treats	\$50 B
Supplies, Live, and OTC Meds	\$29.8 B
Vet Care & Product Sales	\$34.3 B
Other Services	\$9.5 B
Total	\$123.6 B



50% Increase in Pets

Vets experienced a 50% increase in new pets per week Mar-Aug 2020.



Puppies & Kittens Surge

Banfield reported seeing 9.2% more juvenile dogs & 12.4% more juvenile cats for veterinary visits in 2020 vs. 2019



Spike in Veterinary Appointments

Overall, Banfield had approximately half a million more pet visits in 2020 vs. 2019 in their more than 1,000 vet hospitals across 42 states.

¹Morgan Stanley report "Welcome to the Petriarchy"

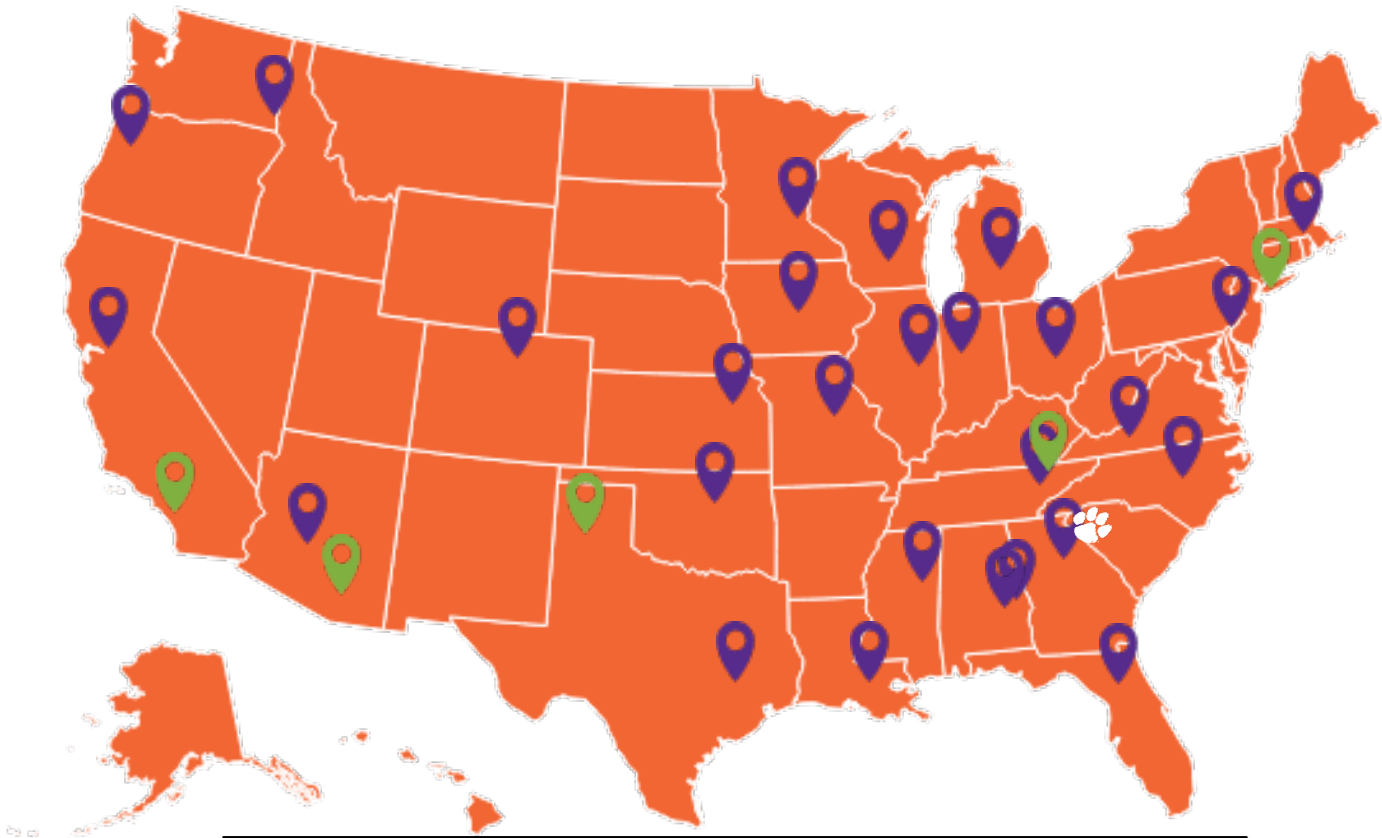
²2022 AVMA Pet Ownership and Demographics Sourcebook

2021 APPA Industry Trends Report

COLLEGES OF VETERINARY MEDICINE

In the United States there are only 33 veterinary colleges accredited by the American Veterinary Medical Association (AVMA), and based upon statistics collected by the AVMA, only 118,600 veterinarians, a population that is one-tenth that of the medical profession. By contrast there are more attorneys registered in the five boroughs of New York City, than there are veterinarians in the entire U.S.A. (AVMA).

In the past two years there were record numbers of applicants to veterinary school and record numbers of job openings. Simply put, the U.S. has not kept up with producing enough veterinarians to meet the needs of even pet owners, much less the number needed to meet agricultural and public health needs. Recent studies also prove that there are ample qualified candidates applying to veterinary college, yet not enough seats across the country to accommodate students' desire to become veterinarians.



KEY



Colleges of Veterinary Medicine



Colleges of Veterinary Medicine with Distributed Model
(further described in document)

COLLEGE OF VETERINARY MEDICINE QUICK FACTS

Since 2016, the vast majority of graduating students have received at least one full-time offer two weeks prior to graduation and the percentage of new graduates securing full-time employment has been trending upward since 2012. **As a whole, the veterinary profession is fully employed, boasting an unemployment rate of less than 1%.**



AVG 2022 TUITION

Res. \$34,070

Non-Res \$54,649



AVG CLASS SIZE

117



Class of 2025

10,834 Applicants

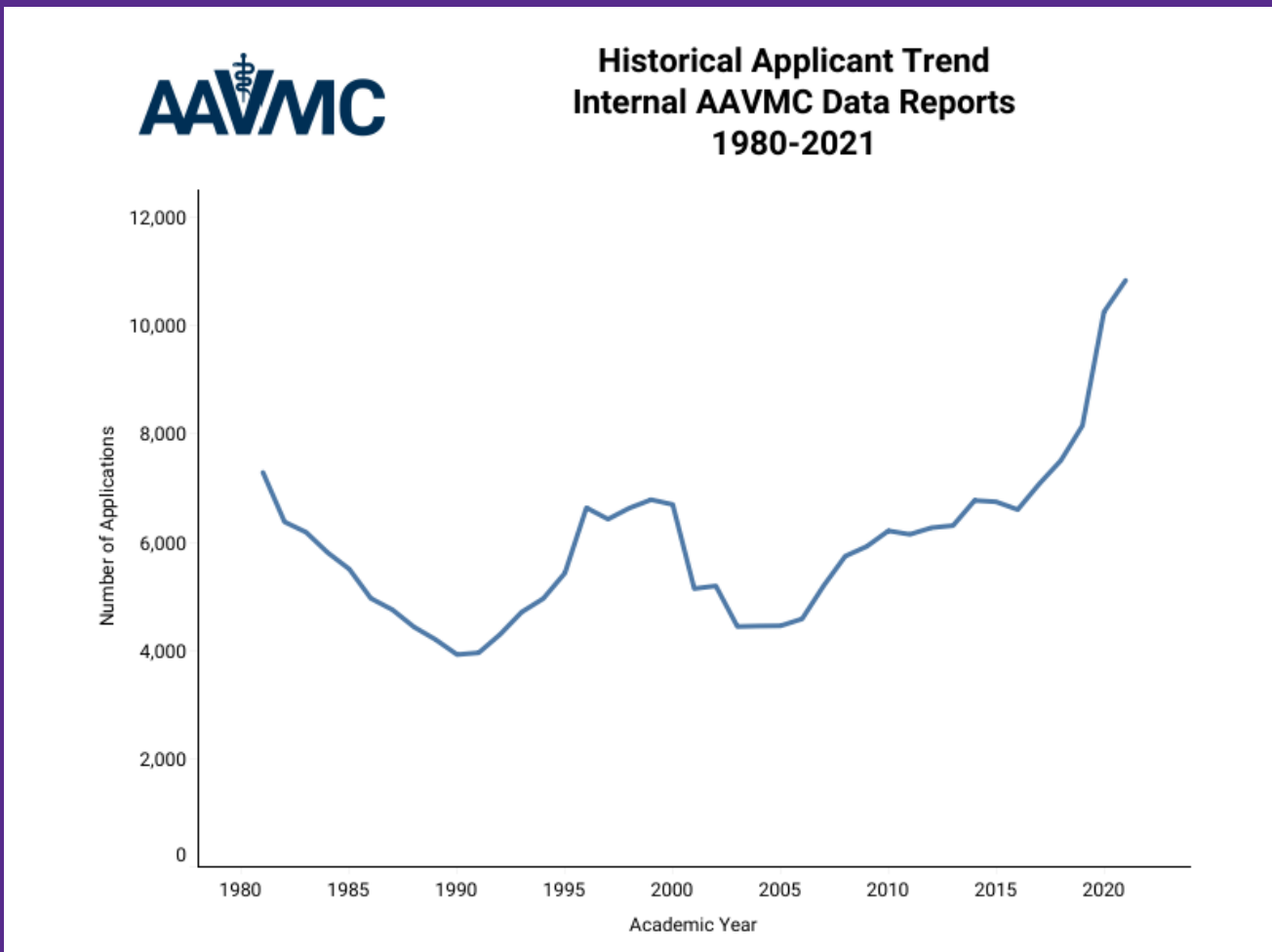
4,571 Seats

INCREASING NUMBER OF VETERINARY SCHOOL APPLICANTS

While there is a veterinary shortage, the number of applicants to veterinary schools **continues to increase year over year** reaching the highest number of applicants that have ever applied to veterinary school.

On average, applicants apply to 4-5 colleges of veterinary medicine per cycle, leaving schools with applicant to seat ratios topping out at 23:1 at Colorado State University.

The 2022 cycle received 10,834 applications.

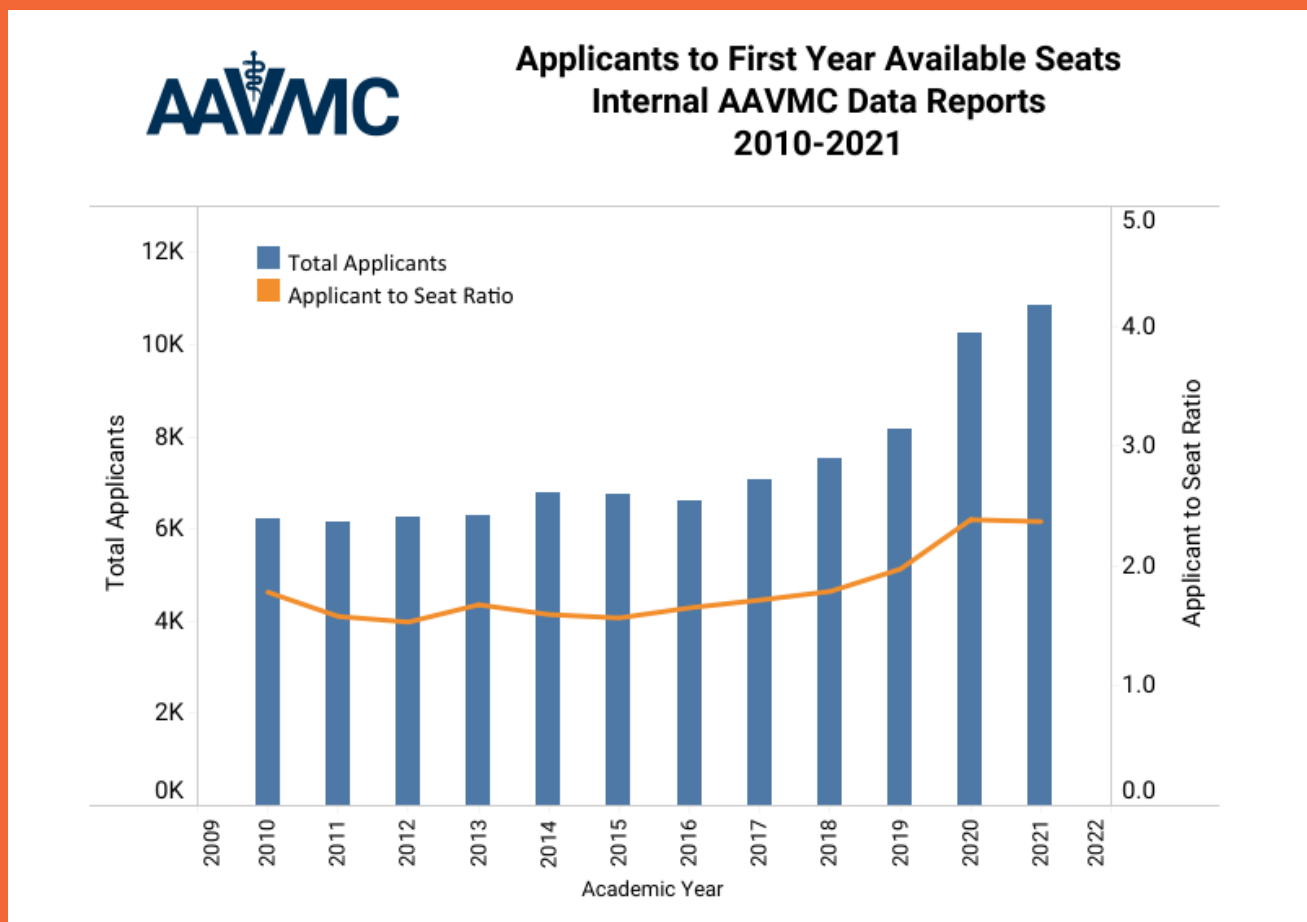


QUALIFIED VETERINARY APPLICANTS ARE PLENTIFUL

A study was conducted of the 2018 veterinary applicant pool – the goal was to assess the prevalence of candidates with acceptable potential for academic success who were not accepted into an AAVMC college during the 2018 admissions cycle. That study concluded that the number of academically qualified candidates substantially exceeded the number of admissions offers extended. This study evaluated quantitative and verbal GRE and quantitative GRE percentile, overall GPA, science GPA and non-science GPA. The *qualified pool that did not get into a program* was estimated to be between **500-2000 applicants**, and perhaps even higher as 2018 applicant data did not represent all member colleges. Of note is that now, in the 2022 applicant cycle, we have reached record levels of applicants to veterinary college with **10,834 applications**.

A strong applicant to seat ratio trend continues, and coupled with record level salaries, the veterinary profession becomes more attractive to students every year.

The 2022 applicant to seat ratio is 2.4.



SOUTH CAROLINA VETERINARY STUDENT APPLICANTS

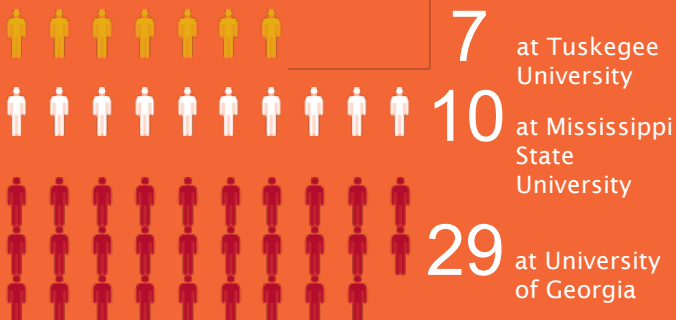
South Carolina is sending many qualified students out of state each year to obtain their veterinary degree. In 2022 alone, nearly 200 South Carolina students were actively enrolled in veterinary college across more than 13 schools in the US.

200 SC students actively enrolled in veterinary college across more than **13** veterinary colleges outside of South Carolina



Over the last 5 years an average of >50% of Clemson students that applied to veterinary school were accepted.

For the Class of 2026, South Carolina is providing tuition coverage for 46 students to pursue veterinary education out of state this year alone.



Using the University of Georgia CVM as an example with 101 applications from South Carolina students, 83 fully met their admission requirements, for the 29 SC seats in this fall's freshman class. Therefore, only 29% of SC students who applied to UGA CVM were accepted and enrolled.

Data Source: AAVMC Annual Data Report 2021-2022

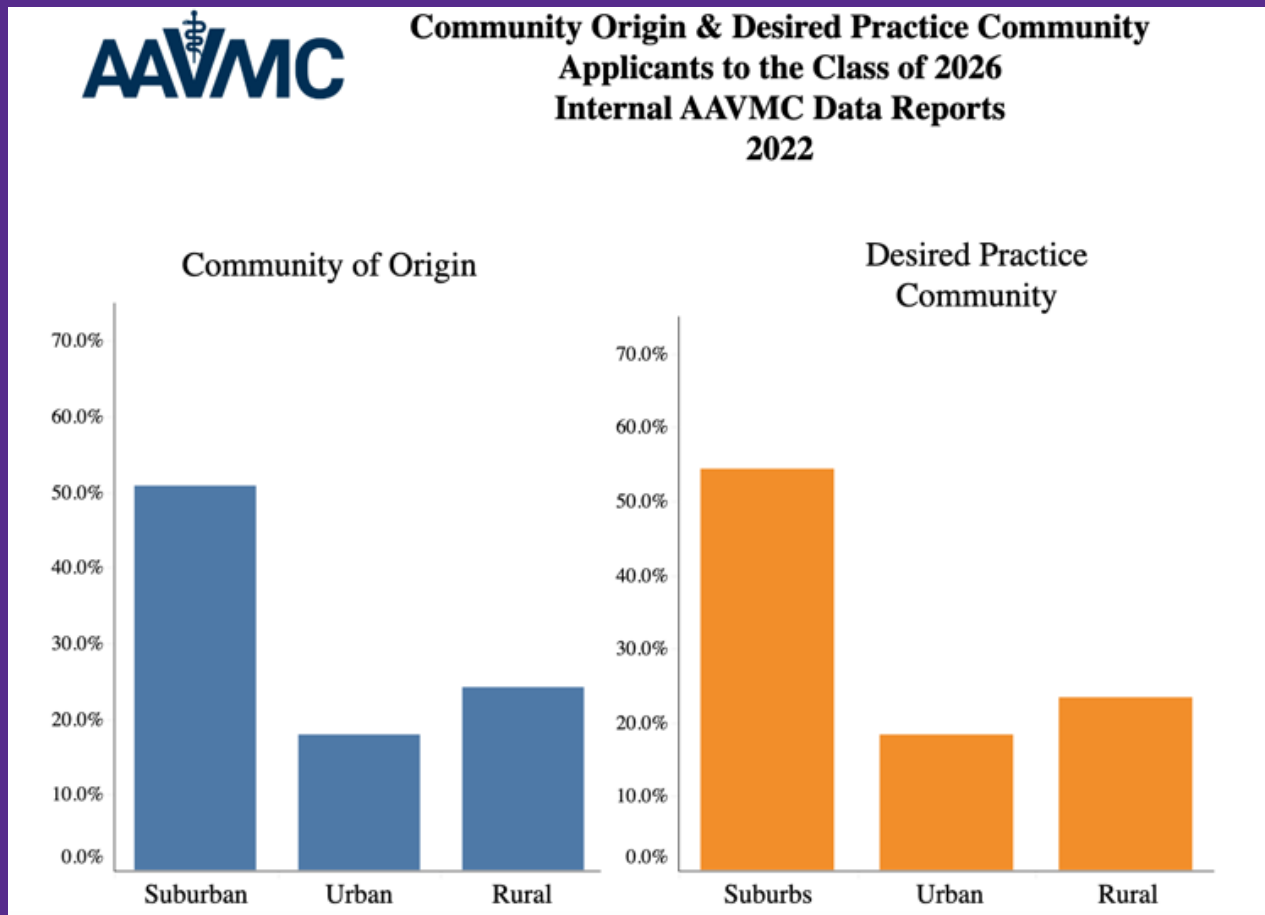
CLEMSON

has the strongest Pre-Veterinary Program in the state with around **400** students.

VETERINARY STUDENTS CHOOSE TO PRACTICE IN LOCALES SIMILAR TO WHERE THEY ORIGINATED

An in state veterinary college will clearly drive graduates to practice in the state, both in rural food animal and companion animal practice. Additionally, the distributed model of education places senior veterinary students in clinics across the state, where they are more likely to remain and practice post-graduation.

Quality applicants with a verified interest in going back to rural areas to practice.



THE MARKET FOR VETERINARIANS HAS NEVER BEEN BETTER

Starting Salaries of Graduates Securing Fulltime Employment



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Key Takeaways

- The **debt-to-income ratio (DIR) for 2022 graduates is 1.41**, lowest since 2005 (1.41)
- Mean incomes among graduates securing full-time employment is \$111,242 meeting pre-financial crisis trends & **continuing to increase**
- **96.3%** of 2021 graduates reported they secured a full-time job offer or advanced education opportunity. This is the highest proportion since 2001.
- Corporate practices remunerate new hires with larger signing bonuses and moving allowances than private practices
- Proportion of tuition and fees paid by parents or other family member steadily increasing while proportion covered by loans decreasing

The US average income in 2022 for veterinarians is
\$136,837



ESTIMATED ECONOMIC IMPACT

After graduating with their Doctor of Veterinary Medicine (DVM) degree, CVM students returning to their communities exert a positive economic impact by **employing an average of 10 employees and infusing over \$500,000** into a community.

Total Economic Impact of a Typical Established Veterinary Practice on the State of South Carolina*

	1 Practice
Employment Impact (Per Veterinary Practice)	
Jobs from Veterinary Practice	7
Veterinary Sector Employment Multiplier	1.4
Secondary Employment Impact	3
Total Employment Impact	10
Income Impact (Per Veterinary Practice)	
Income Impact from Veterinarian Practice	\$364,505.00
Veterinary Sector Income Multiplier	1.44
Secondary Income Impact	\$160,382.00
Total Income Impact	\$524,887.00
Retail Sales and State Sales Tax Impact	
Retail Sales Impact	\$148,018.00
State Sales Tax Impact (6%)	\$8,881.00

*CAHA data based upon IMPLAN + mixed animal practice model. Doekson, G., et al 2012., adjusted for inflation Note- this is an extremely conservative model

THE DISTRIBUTED MODEL OF VETERINARY EDUCATION

Distributed models of clinical education emerge as the strongest model of veterinary clinical education.

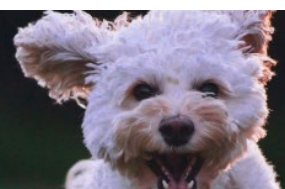
In 44 years, there have only been six new colleges of veterinary medicine in the USA, and all of those, except one, has utilized a community-based learning model, or a distributed model, for their senior clinical rotations. In a distributed model, students learn their basic sciences, anatomy, pre-clinical skills and communication skills during their first 2.5 – 3 years on campus, after which they leave and conduct their clinical learning in distributed learning sites.

In this model of clinical education, academia partners with real-world clinical collaborators to provide an immersive, cost-effective, high caseload, hands-on experience to best educate our future veterinarians. Those sites can be general private practices, specialty private practices, veterinary industry, small or large animal, wildlife or exotic, governmental or non-profit, or research based.

This model of education is also what the learners of today want. They want to be able to choose how and where to spend their learning time so that they can craft their future career path with valuable experiences, all with the goal of teaching and learning commonly seen conditions uncommonly well, better preparing graduates for entry level success. Under this model, students and their teachers are no longer constrained by the limitations and boundaries of a tertiary care university-based teaching hospital, which by design, focuses on uncommon and complex tertiary care delivery; often at the expense of primary care education.

There are two main factors that enable this model, at this moment in time, to be a quality learning experience. One, caseloads at most traditional university-based teaching hospitals have been trending down over the years. Placing students in the trenches, in real life, busy practices increases their exposure to cases and grows their competency and confidence, and their market value, as the data shows. Second, technology can now be leveraged to capture learning outcomes, no matter where a student is located. Rounds can be conducted virtually or in-house, students SOAPs can be verified, and skills and competencies logged and checked off via off the shelf technology.

Demand continues to grow for the distributive model, the power of partnership between private practice and the academia is powerful. The new generation of vet schools across the globe are nearly all distributed - Calgary, Lincoln Memorial, Arizona, Long Island, Texas Tech, Western, and the new ones in the United Kingdom - Surrey, Nottingham, and Harper-Keele.



The Veterinary Educational Model for now and the future: **The Distributed Model**



Real World Immersion



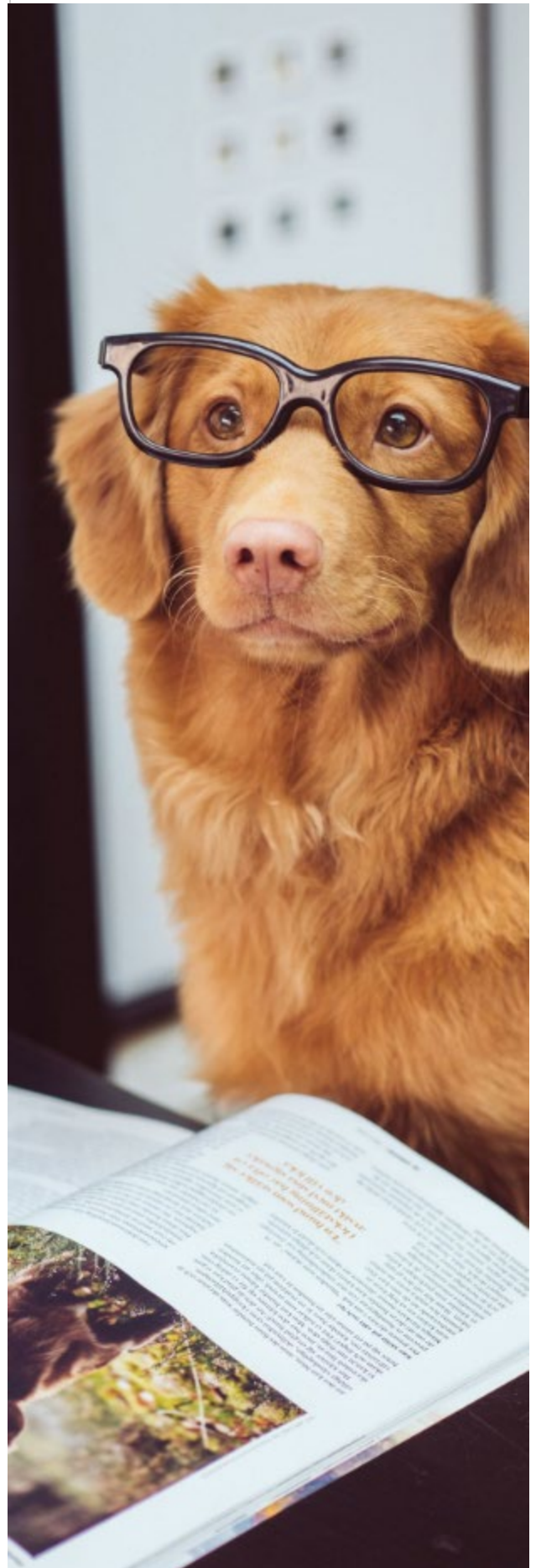
Tailor student Clinical Year Focus



Student creates their own geography



Networking & Job Offers










THE DISTRIBUTED MODEL

A DISTRIBUTED LEARNING MODEL HAS MANY ADVANTAGES FOR THE COLLEGE; THE CHIEF OF WHICH ARE FINANCIALLY RELATED.



Financial advantages:

-  College does not have to build a large referral veterinary facility (lower capital startup of several hundred million)
-  Ongoing operational costs for senior clinical year are lower
-  Do not have large numbers of specialists on staff tied up on payroll running a tertiary referral hospital
-  Do not have to operate a teaching hospital.
-  Allows college to leverage existing centers of excellence to deliver curricular/accreditation requirements. I.e. - research requirements (either within the college system or external centers of excellence) and specialized senior year clinical rotations.
-  This model engages the veterinary community. In short, practitioners love it, creating opportunities for them to give back to the college.
-  Opportunity for public-private partnerships. - with around 28% of companion animal veterinary medicine practices consolidated, (corporately owned) many large corporate groups are eager for students to do work-place learning and are looking to partner for career paths, to co-create and deliver content.

THE DISTRIBUTED MODEL

Practitioners enjoy the opportunity to prepare future veterinarians by hosting and mentoring fourth year veterinary students during clinical experiences.

Additional benefits for the supervising veterinarian include:

Discuss and demonstrate the skills and knowledge that should be taught to veterinary students.	Be exposed to recent veterinary advancements and knowledge by working with students.	Have an impact on the veterinary profession and education.	Have the ability to evaluate potential future employees in your facility.
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“

How do you educate veterinary students to be productive in practice and practice ready upon graduation?

The best way is to get them into real life practices sooner.

”



CLINICAL YEAR OVERSIGHT

Students enrolled in the clinical year have extensive oversight based on campus, in their clinic of choice, and virtually. Students have required touchpoints throughout each rotation to ensure feedback loops and healthy educational experiences. Clinical Affiliate partners should be committed to lifelong teaching and learning. Clinical Affiliates provide a quality work environment that emphasizes teamwork with a varied and busy case load. The various levels of clinical year oversight that surround each student are detailed below.



STUDENT

Students enrolled in their 4th year of veterinary college are immersed in a distributed model which allows them to travel to veterinary clinics around the world and gain first-hand experience and world class facilities. Throughout the students clinical year there are multiple layers of oversight.



SUPERVISING VETERINARIAN

The supervising veterinarian will guide students through the clinical experience at their clinical site. Responsible for providing the student with feedback based on observed clinical performance, assessment of competencies and patient care documentation through daily interactions.



VIRTUAL OVERSIGHT

Clemson will employ faculty members to virtually oversee students at distributed instructional sites through the student's electronic portfolio. The virtual oversight adds to learning value through guided clinical discussion of learning experiences every week.



AREA COORDINATOR

Clemson will employ faculty members that visit each core curricular site to meet with the students on rotation and corresponding supervising veterinarian at least once per 4-week required rotation.



UNIV. CLINICAL YEAR TEAM

The university Clinical Year Team supports students leading up to and throughout the fourth-year clinical experience. Based on campus, this team is responsible for recruiting new clinical sites, assuring compliance from existing clinical sites, overseeing the entire clinical affiliate network and all student needs, from scheduling to evaluations.

Hub Concept

The Clinical Year has focused areas, or hubs, many of which are in or close to cities, which allow students to spend several months in a location and complete multiple rotations.



- Greenville
- Spartanburg
- Rock Hill
- Columbia
- Charleston
- N. Augusta/Aiken

DISTRIBUTED MODEL SUPPORTS QUALITY LEARNING OUTCOMES

Outcomes of the veterinary medical degree program must be measured, analyzed, and considered to improve the program. New graduates must have the basic scientific knowledge, skills, and values to provide entry-level health care, independently, at the time of graduation. The college will have in place a system to gather outcomes data on recent graduates to ensure that the competencies and learning objectives in the program result in relevant entry level competencies. Learning outcomes can be captured and analyzed in many ways. Various methods are outlined below.



DIRECT OBSERVATION
in areas of professionalism and interpersonal skills, clinical skills and knowledge by the clinical year supervisor at the clinical site which are submitted via electronic evaluations submitted to the college.



QUESTIONS ARE MAPPED TO COMPETENCIES
Questions asked are mapped to Program Outcomes which include the 9 AVMA Competencies. Results of these evaluations are reviewed for trends and individual student achievement.



Students log their daily experiences in electronic portfolios



Virtual Rounds with classmates and mentors



Assessments
Collected from students and preceptors regularly to improve the program



NAVLE
Prep courses and quizzes provided ahead of the test & individual study plans for those who did not pass.

New graduates must have the basic scientific knowledge, skills, and values to provide entry-level health care, independently, at the time of graduation.



DISTRIBUTED MODEL FACILITY OVERVIEW



CAMPUS FACILITIES DESIGNED FOR TEACHING & GETTING STUDENTS READY FOR THE SENIOR YEAR

The facilities needed to launch a veterinary school utilizing a **distributed model** are vastly different from what was the norm for centuries. The chief difference is there is no need to build a tertiary referral teaching hospital. The new distributed colleges have all built slightly different facilities on campus to meet their needs for their specific curriculum, the institution's desires, available capital, resources and collaborations to be leveraged on the University level, and desire to partner or collaborate externally. Contemporary models may have their own large animal ambulatory service and many partner with shelters to perform spay and neuter procedures and use that opportunity to teach surgical techniques and anesthesia, which eliminates terminal surgeries.

Highly functional facilities are designed around didactics, basic sciences and pre-clinical skills including surgical training, medical skills and communication skills, and model and live animal training. Spaces are purposefully designed for the learner to be the center of the room.

Modern DVM curriculum is based upon the philosophy of clinical immersion that recognizes medical knowledge must be developed side-by-side with clinical skills and competency demonstration. With this in mind, hands-on experiences with animals begin in the first semester along with communication courses and research opportunities.

THE VISION FOR A CLEMSON COLLEGE OF VETERINARY MEDICINE

The Clemson College of Veterinary Medicine facilities would include:

- Clinical Skills teaching laboratories¹
 - Food Animal Teaching Center
 - Equine Teaching Center
 - Small Animal Skills laboratory
- Professional Skills laboratory²
- Anatomy & Microscopy laboratories
- Lecture Halls & other classrooms
- Surgical & Procedures training laboratories³
- Administrative & Faculty office spaces
- Research laboratories and associated offices
- Large animal ambulatory service home

¹Clinical Skills training, using live animals and models, encompasses skills such as physical examinations and other routine procedures, proper animal handling procedures such as restraint techniques and positioning of animals. Food Animal Teaching Center to be located at the Clemson LaMaster Dairy with the Equine Teaching Center adjacent to the Clemson Equine Farm property facilitating access to existing Clemson herds and flocks.

²An innovative Professional Skills laboratory will help students develop effective communication techniques and understand professional ethics, basic economics and other topics.

³Partnership with local shelters and rescue groups to perform spays, neuters and other basic needed surgeries for the animals they take in to prepare them for adoption is envisioned for surgical training of students.

A total of approximately 233,000 square feet of new facilities with an estimated capital cost of \$285,000,000⁴.

⁴Capital cost estimate based on initial projections provided by Foil Wyatt Architects & Planners, PLLC, Jackson, MS, further refined by Foil Wyatt following Clemson team site visits to distributive model Colleges of Veterinary Medicine, and finally third party validated in November 2022 by MBP, Raleigh, NC.

THE VISION FOR A CLEMSON COLLEGE OF VETERINARY MEDICINE

Programmatic Highlights

- Class size: 80/class for a total of 320 veterinary students when fully enrolled
- Facility capacity: space to accommodate up to 125/class
- Location: initially occupy 15-20 acres of a 50-to-60-acre CVM main campus site
- Curriculum: Distributed Model of Veterinary education
 - Partnering with private and public practices, including specialist clinics and referral centers to provide real world training during clinical 4th year.
 - Utilizing the existing Clemson Veterinary Diagnostic Center in Columbia for 4th year pathology/necropsy training.
 - Establishing a large animal ambulatory practice based at the CVM campus to provide 4th year clinical training on food animals.
 - Clinical and professional skills training begins in the first semester
- Special focus in recruiting qualified applicants from rural underserved areas, as well as those with livestock experience.
- Feasibility study underway on attracting private donations/grants to supplement operating costs

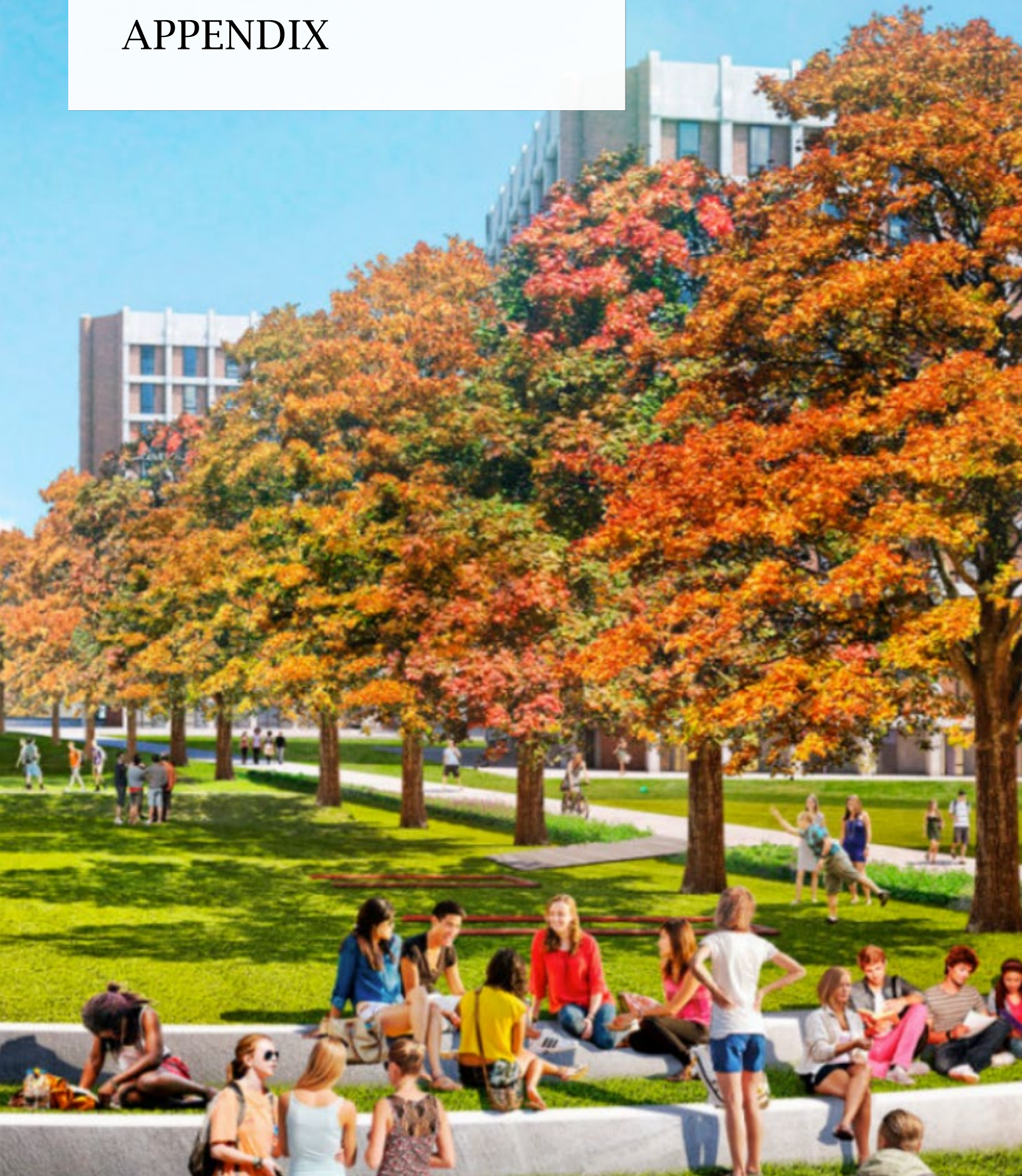
Timeline, funding needs, and accreditation milestones

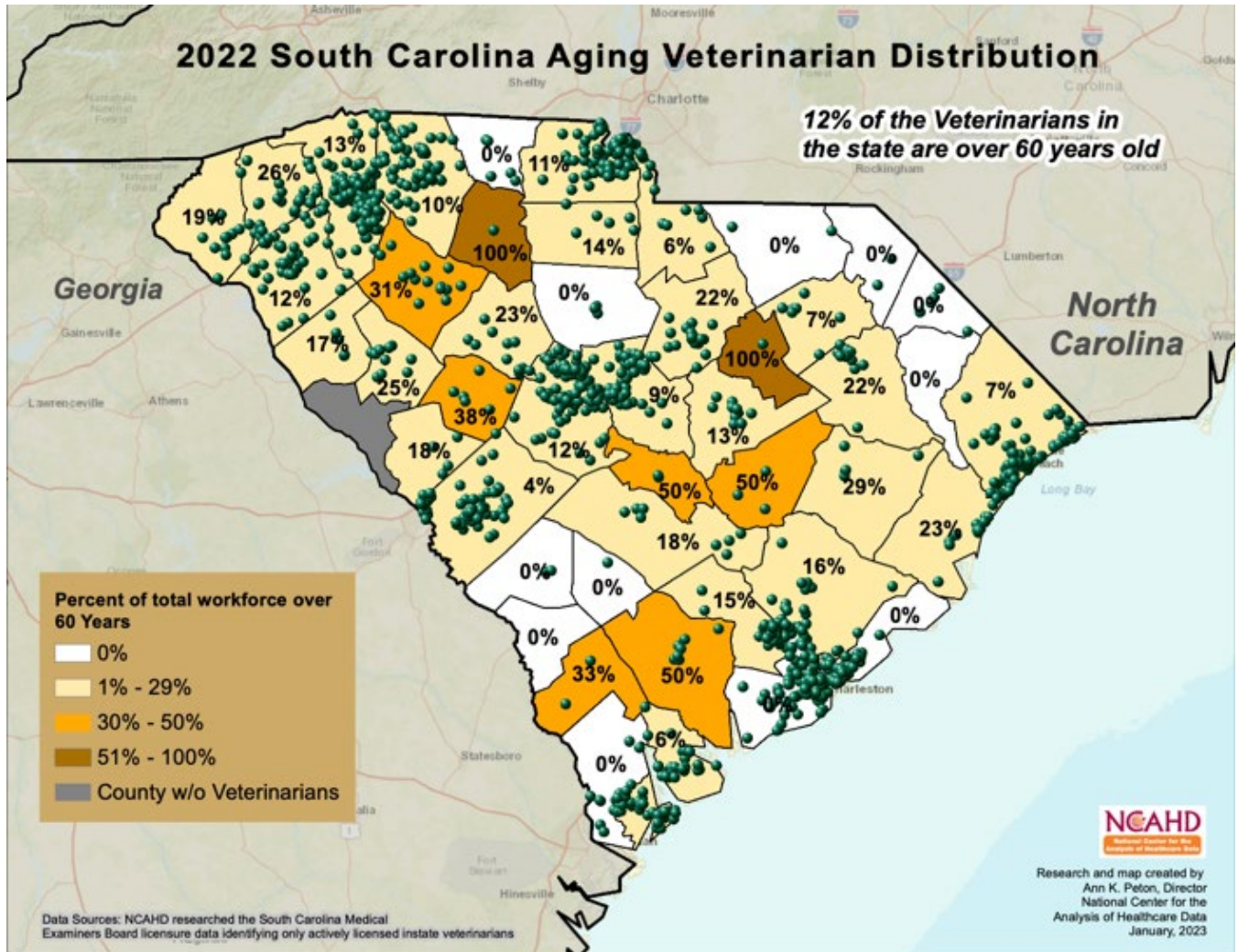
Fiscal Year	Construction Milestone	Accreditation Milestone	Student Milestone	SREB Slot Reallocation	Recurring Funding	One-Time Funding
22/23	Comprehensive feasibility study on project budget, timing and site selection;- Engage Architect / Engineering firms and Construction Manager at Risk to provide schematic designs of facilities	Detailed implementation and Program plan		\$0	\$0	\$10,000,000
23/24	Finish Schematic Design (Fall 2023) and complete Construction Design documents(Spring 2024); Begin sitework	Hire Founding Dean (Summer 2023), set curriculum, begin preparation for letter of reasonable assurance application and site visits		\$0	\$2,500,000	\$45,466,000
24/25	Begin Construction - Teaching & Clinical Space (Fall 2024)	Obtain Letter of Reasonable Assurance (Winter 2025)	Recruit 1st class (Spring 2025); Applications (Summer 2025)	\$0	\$7,500,000	\$175,800,000
25/26	Begin Construction Research Space (Fall 2025)		Accept 1st class (Winter 2026)	\$0	\$10,000,000	\$57,400,000
26/27	Complete Construction Teaching & Clinical by beginning of Fall 2026 semester	Provisional Accreditation upon enrolling first class (Aug. 2026)	Enroll 1st class (Aug. 2026)	\$1,700,000	\$12,500,000	\$0
27/28	End construction	Provision Accreditation, report data, site visits	Enroll 2nd class	\$3,400,000	\$12,500,000	\$0
28/29	Occupy and Maintain	Provision Accreditation, report data, site visits	Enroll 3rd class	\$5,100,000	\$12,500,000	\$0
29/30	Occupy and Maintain	Provisional Accreditation with application for full; award first DVM degrees (May 2030)	Enroll 4th class - Award 1st DVM (May 2030)	\$6,800,000	\$12,500,000	\$0
30/31	Occupy and Maintain	Full accreditation		\$6,800,000	\$12,500,000	\$0

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 - <https://americanpetproducts.org/Uploads/MarketResearchandData/2021StateoftheIndustryPresentationDeck.pdf>
 - https://www.americanpetproducts.org/press_industrytrends.asp
- David Sprinkle – Packaged Facts & MarketResearch.com Publishing
- Jim Lloyd; Lloyd/Animal Health Economics April 2021 study: “Pet Healthcare in the U.S.: Are there Enough Veterinarians?”
- Morgan Stanley report “Welcome to the Petriarchy” <https://advisor.morganstanley.com/mcqueary-schumm-group/documents/field/m/mc/mcqueary-schumm-group/Welcome%20to%20the%20Petriarchy.pdf>
- O’Hara Research and Analytics
- U.S. Department of Agriculture’s National Agricultural Statistics Service (NASS) 2017 Census of Agriculture
- Veterinary Practice NEWS: <https://www.veterinarypracticenews.com/75-million-pets-may-lose-access-to-care-by-2030/>
- VMLRP: <https://nifa.usda.gov/program/veterinary-medicine-loan-repayment-program>

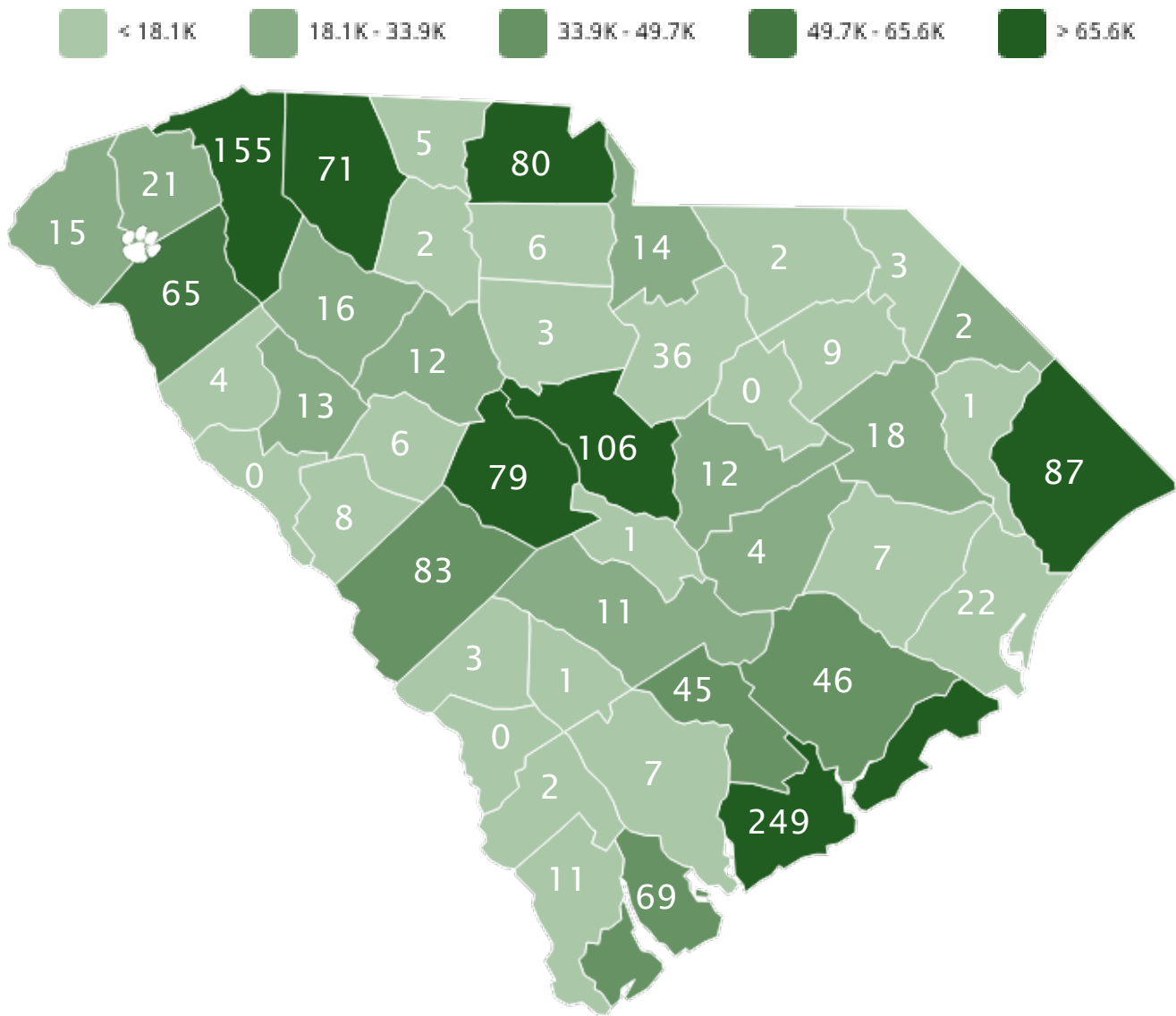
APPENDIX





DISTRIBUTION OF LIVESTOCK/PETS AND VETERINARIANS IN SOUTH CAROLINA

Total estimated Number of Livestock & Pets = 2,945,480

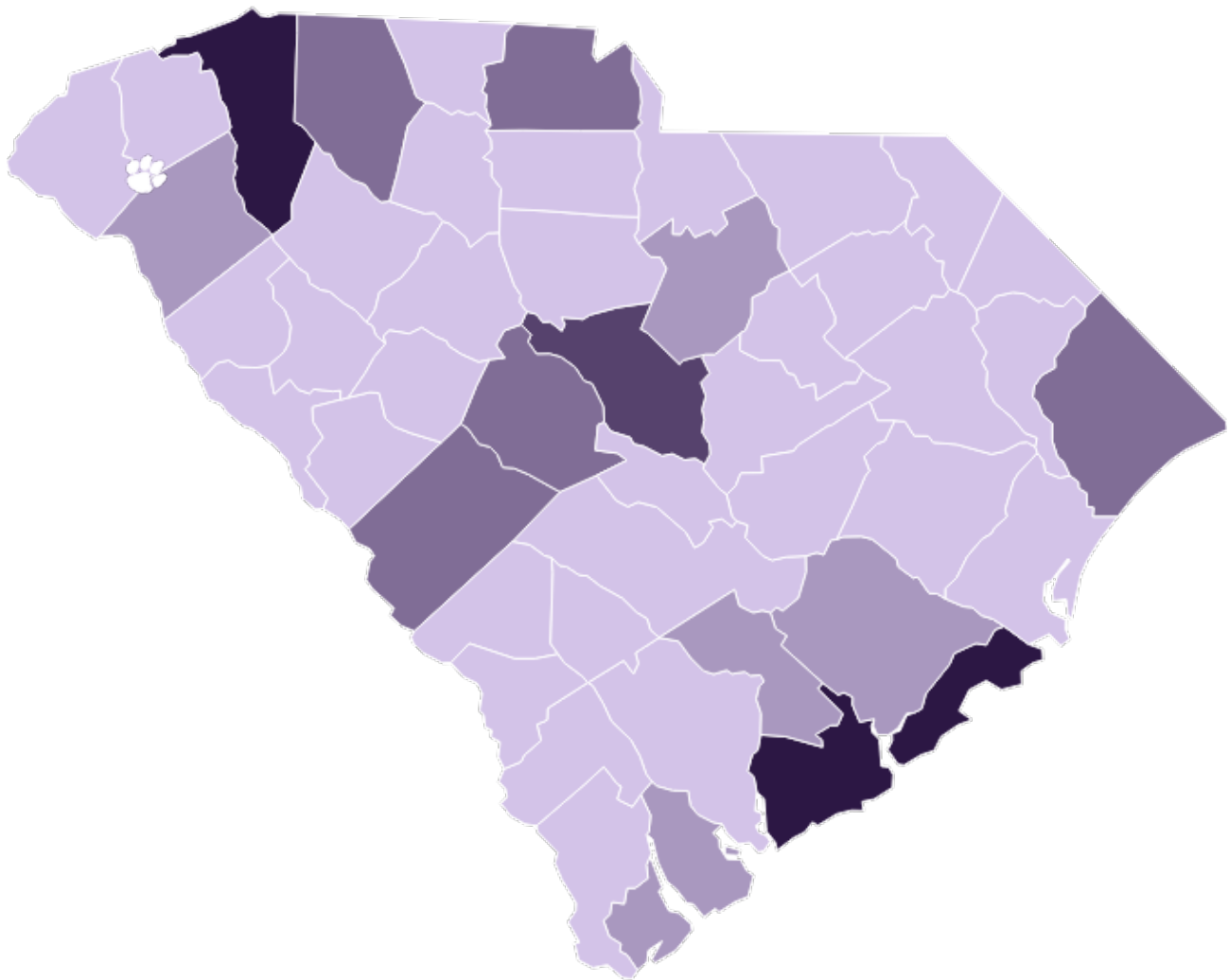


KEY TAKEAWAYS:

- **33% of South Carolina counties have less than 5 veterinarians**
- **48% of South Carolina counties have less than 10 veterinarians**
- Livestock numbers include: Cattle, Hogs & Pigs, Sheep & Lambs, Goats, & Poultry Farms.
 - Important to note that equine numbers are not included.
 - Important to note that actual individual poultry count is not included.
- Veterinarians per county estimated by counting licensed veterinary with SC addresses per county.
- Pet numbers include: Dogs & Cats

2021 SOUTH CAROLINA VETERINARIAN DISTRIBUTION

Total estimated Number of Licensed South Carolina Veterinarians = 1,412



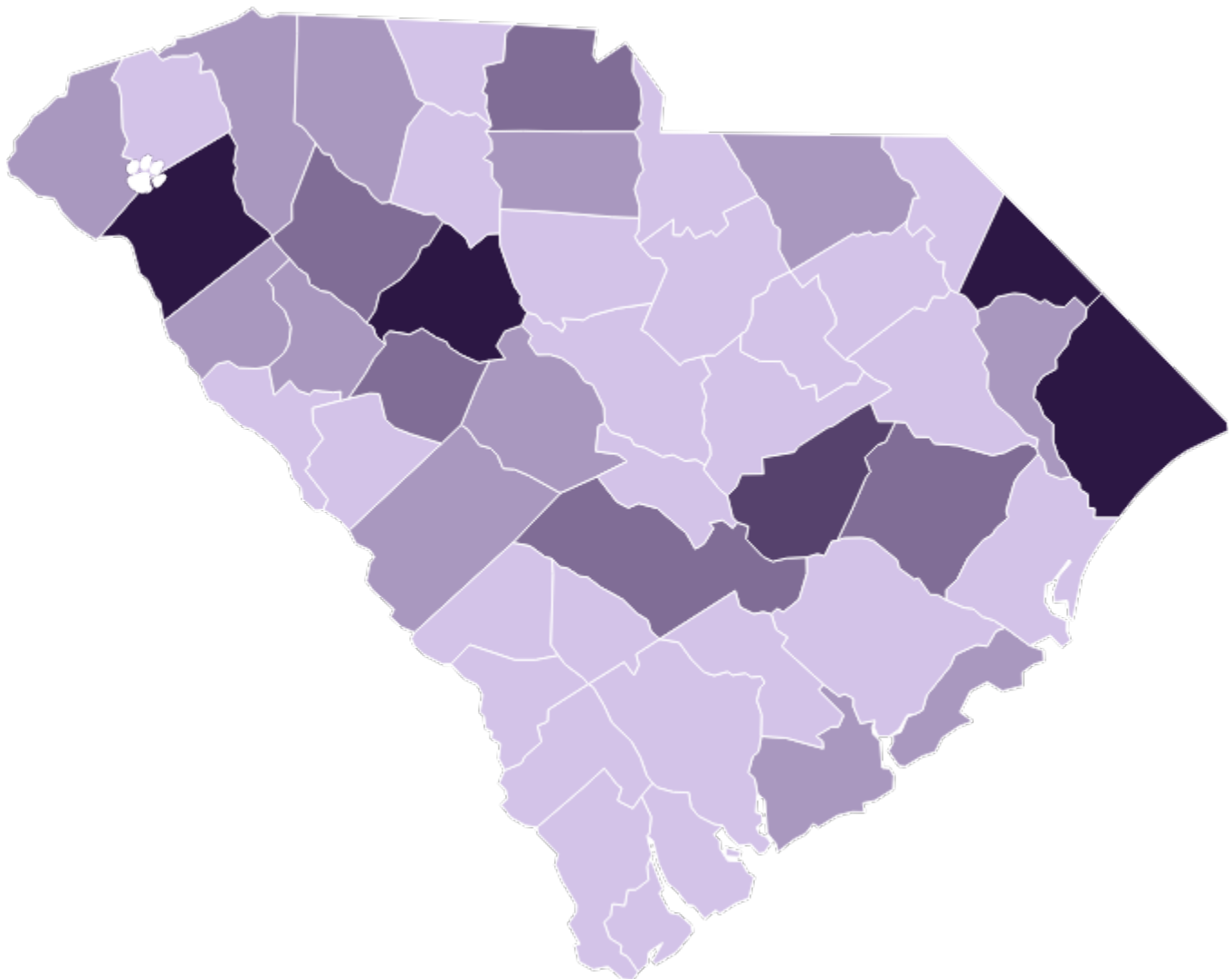
***Nearly 100 veterinarians due to retire in the coming years.**

Methodology: Practicing veterinarians per county estimated by counting only veterinarians with licenses with SC addresses, which made an assumption that other vets living in GA or NC could be practicing in SC or visa-versa.

*6% of the current veterinarians in South Carolina have been licensed for over 40 years and are nearing retirement.

DISTRIBUTION OF LIVESTOCK IN SOUTH CAROLINA

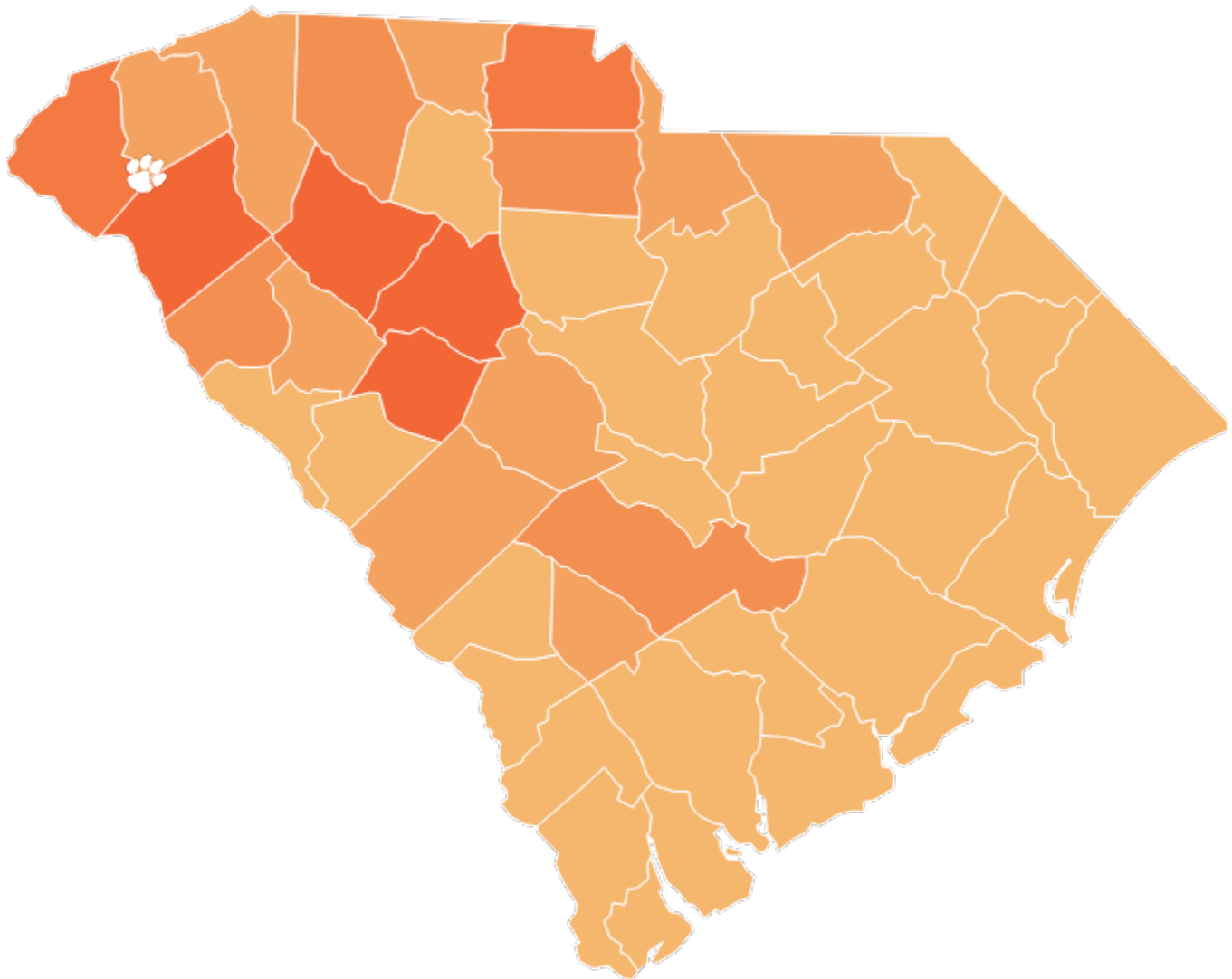
Total estimated Number of Livestock = 597,566



Livestock numbers include: Cattle, Hogs & Pigs, Sheep & Lambs, Goats, and Poultry Farms.

DISTRIBUTION OF CATTLE IN SOUTH CAROLINA

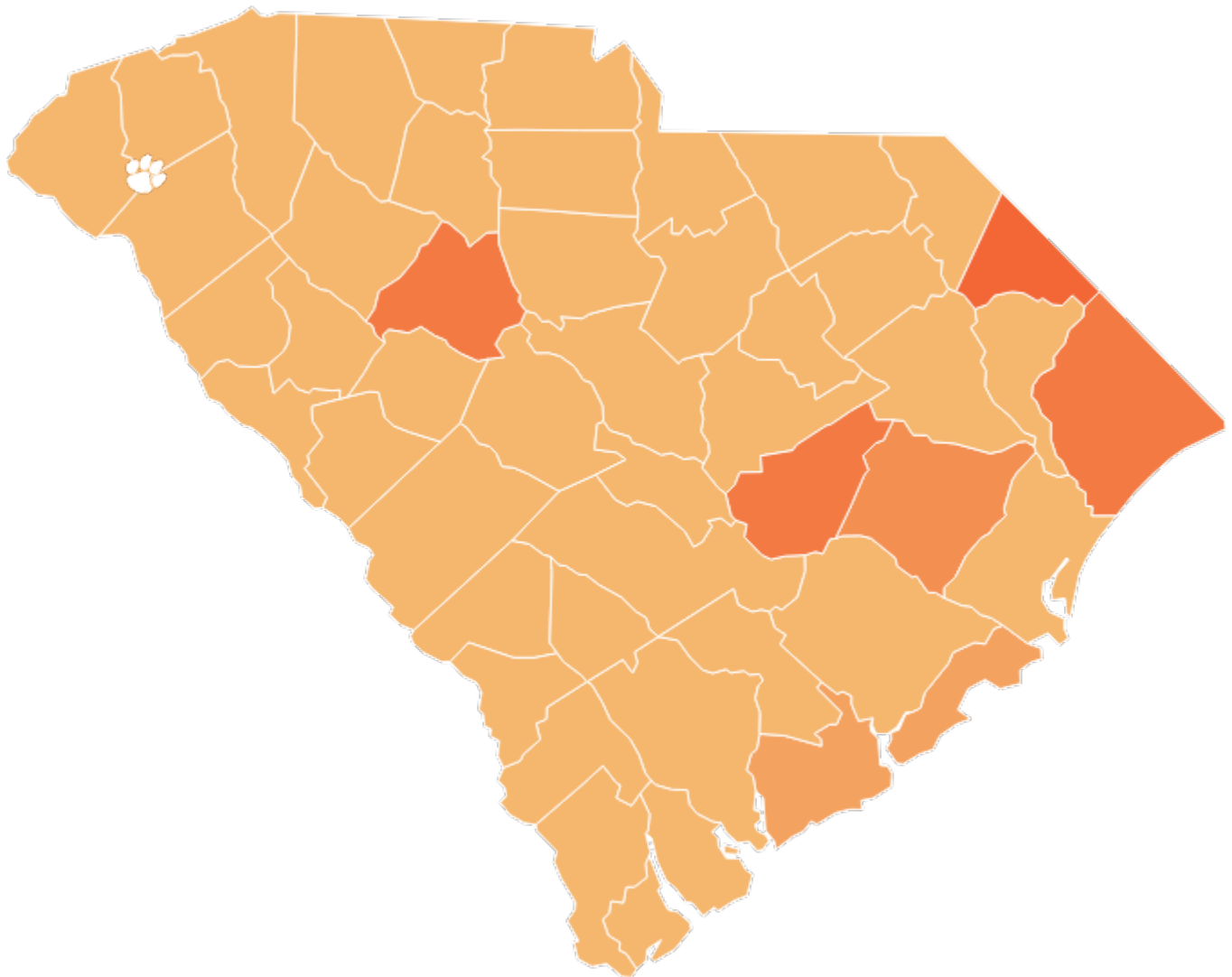
Total estimated Number of Cattle = 326,114



Northwest South Carolina has the heaviest density of cattle.

DISTRIBUTION OF HOGS & PIGS IN SOUTH CAROLINA

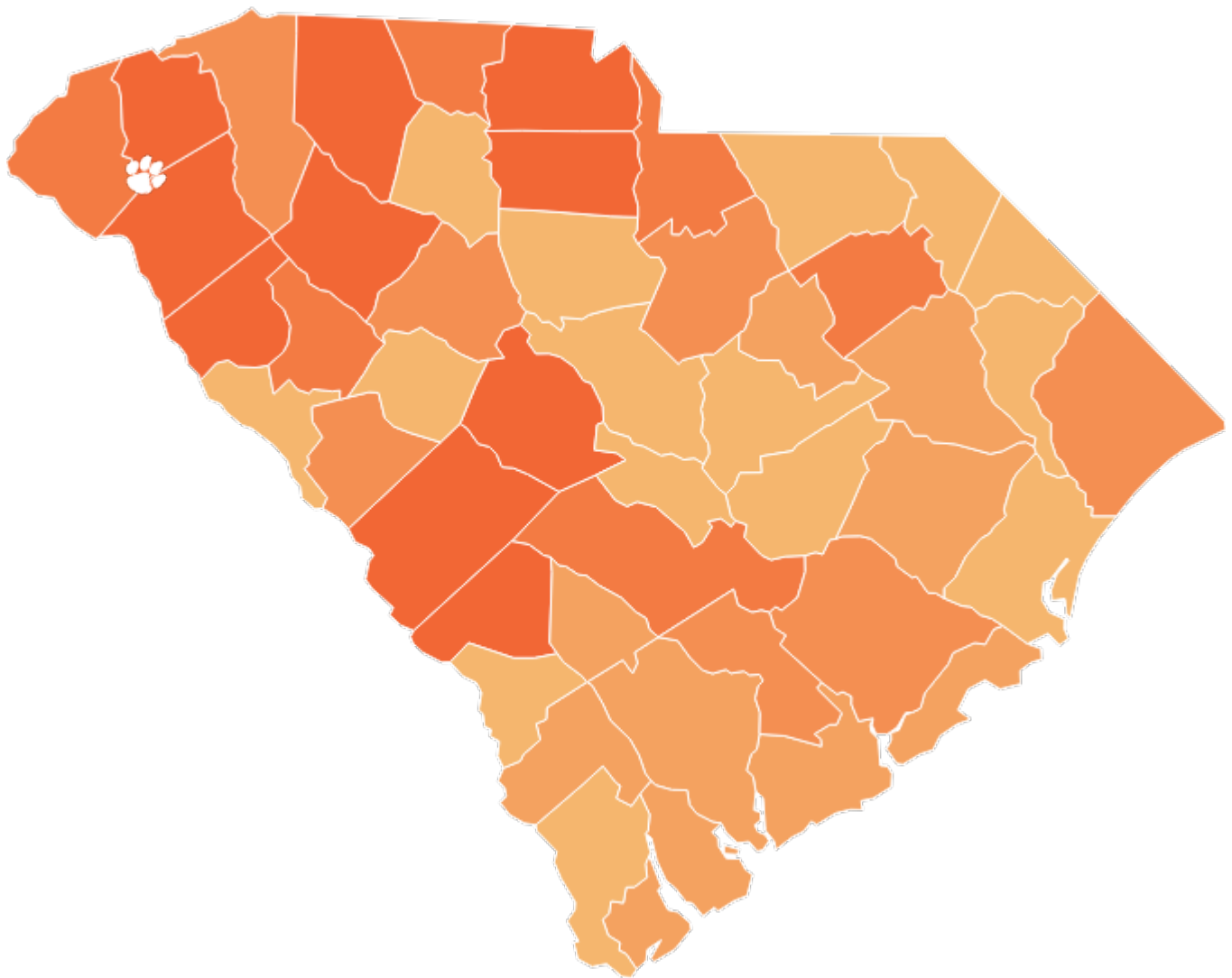
Total estimated Number of Hogs & Pigs = 213,769



Hogs and pigs are most prevalent in eastern South Carolina.

DISTRIBUTION OF SHEEP & LAMBS IN SOUTH CAROLINA

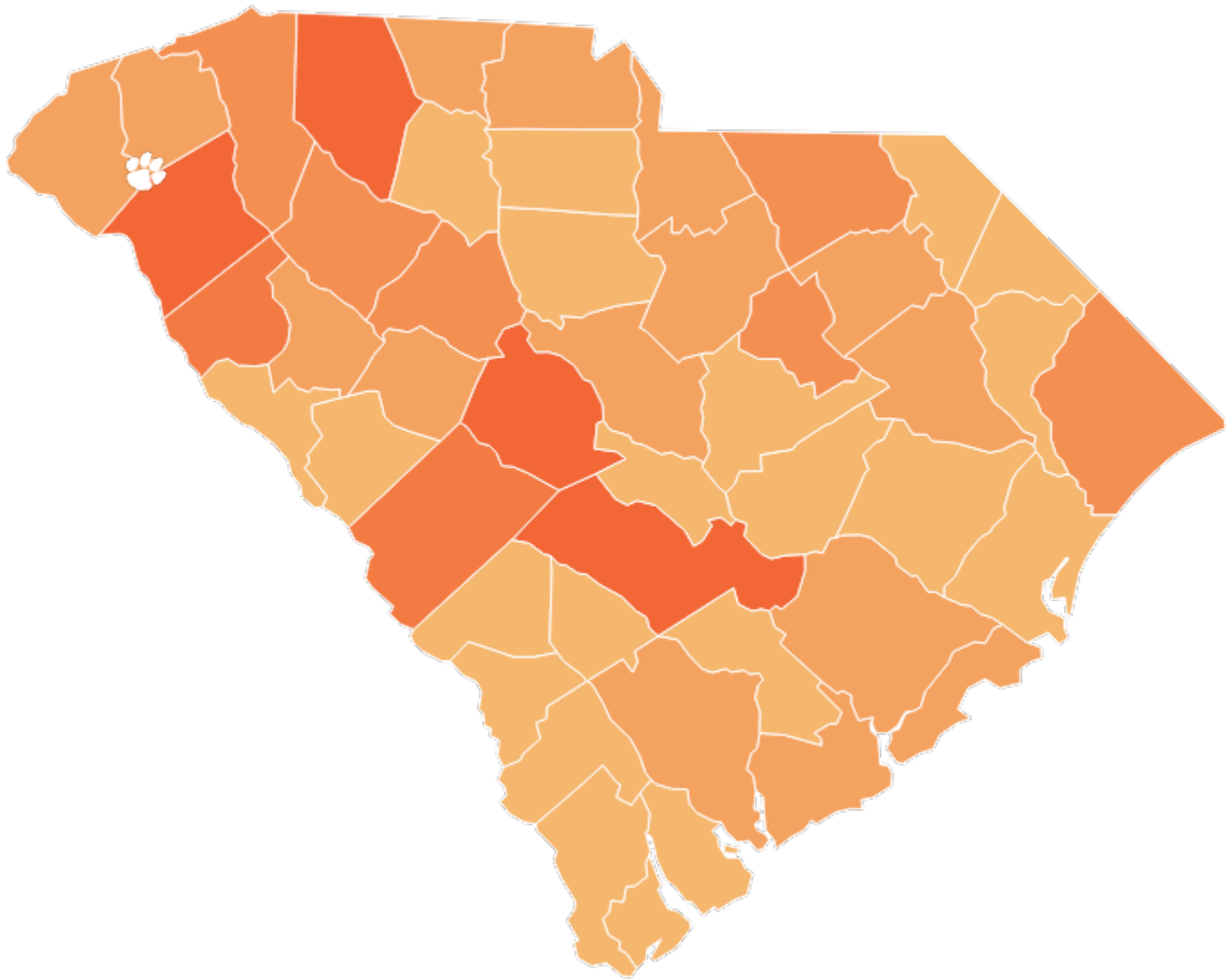
Total estimated Number of Sheep & Lambs = 12,625



The majority of South Carolina's sheep and lambs are on the western side of the state.

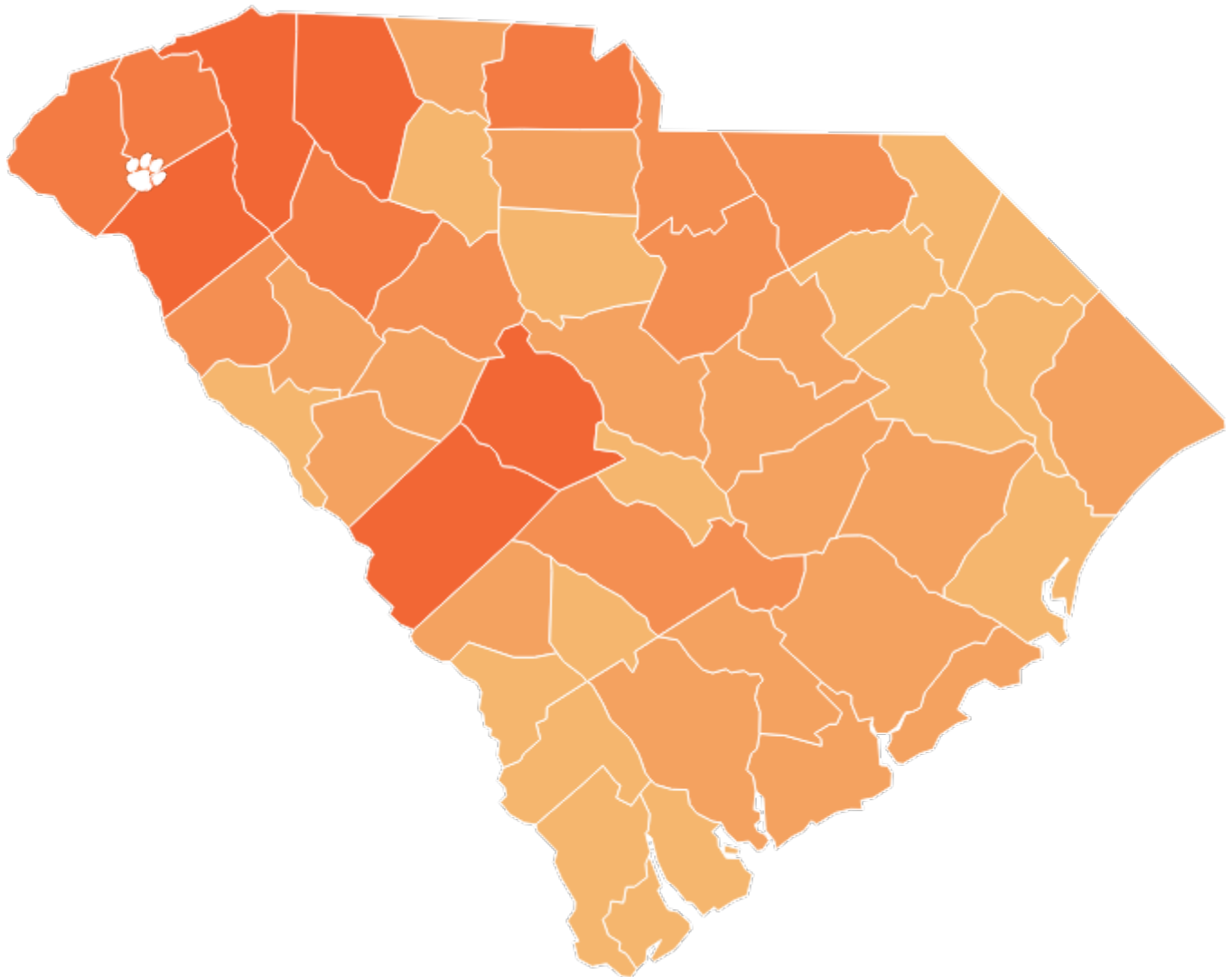
DISTRIBUTION OF GOATS IN SOUTH CAROLINA

Total estimated Number of Goats = 40,726



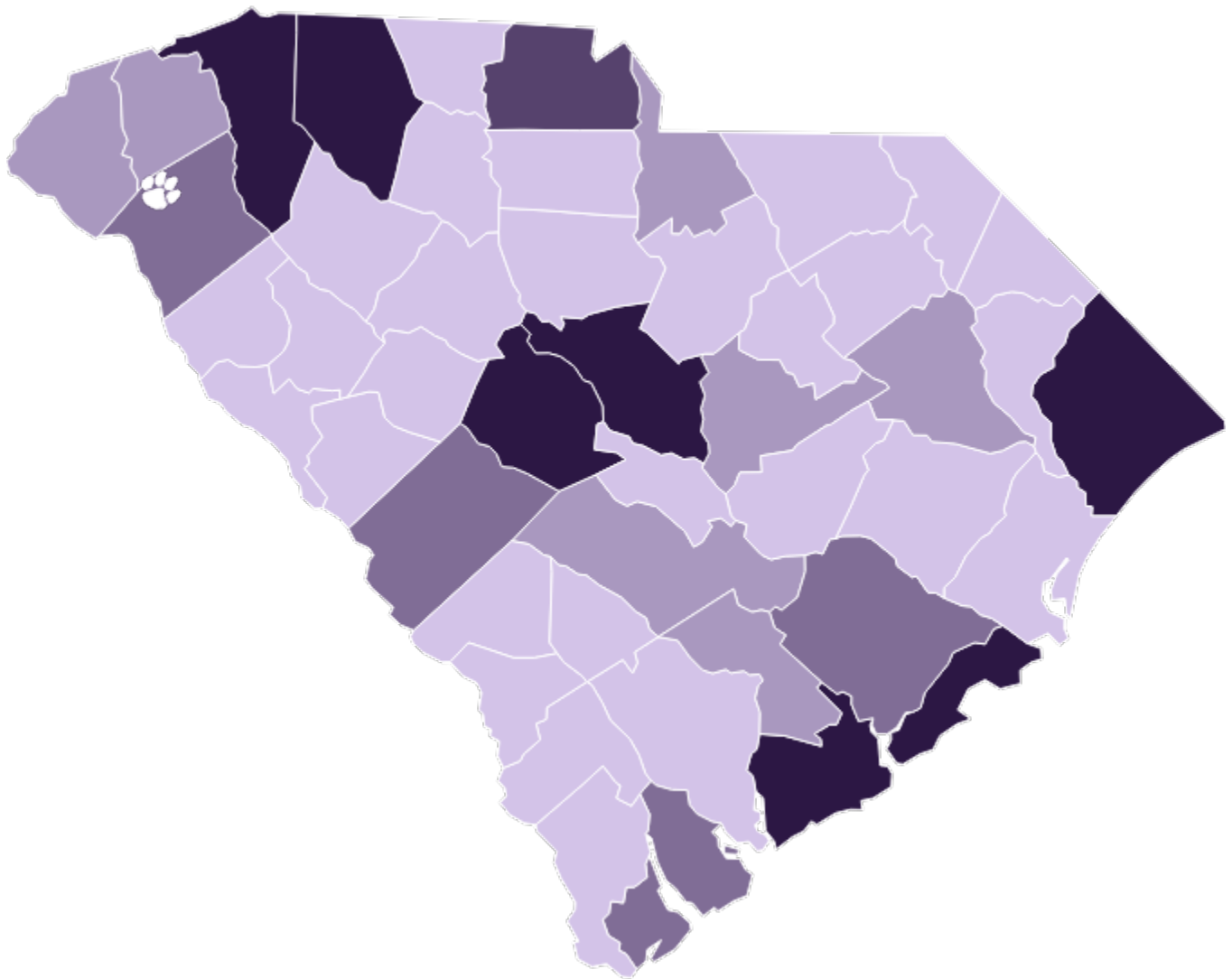
DISTRIBUTION OF POULTRY FARMS IN SOUTH CAROLINA

Total estimated Number of Poultry Farms = 4,332



DISTRIBUTION OF PETS IN SOUTH CAROLINA

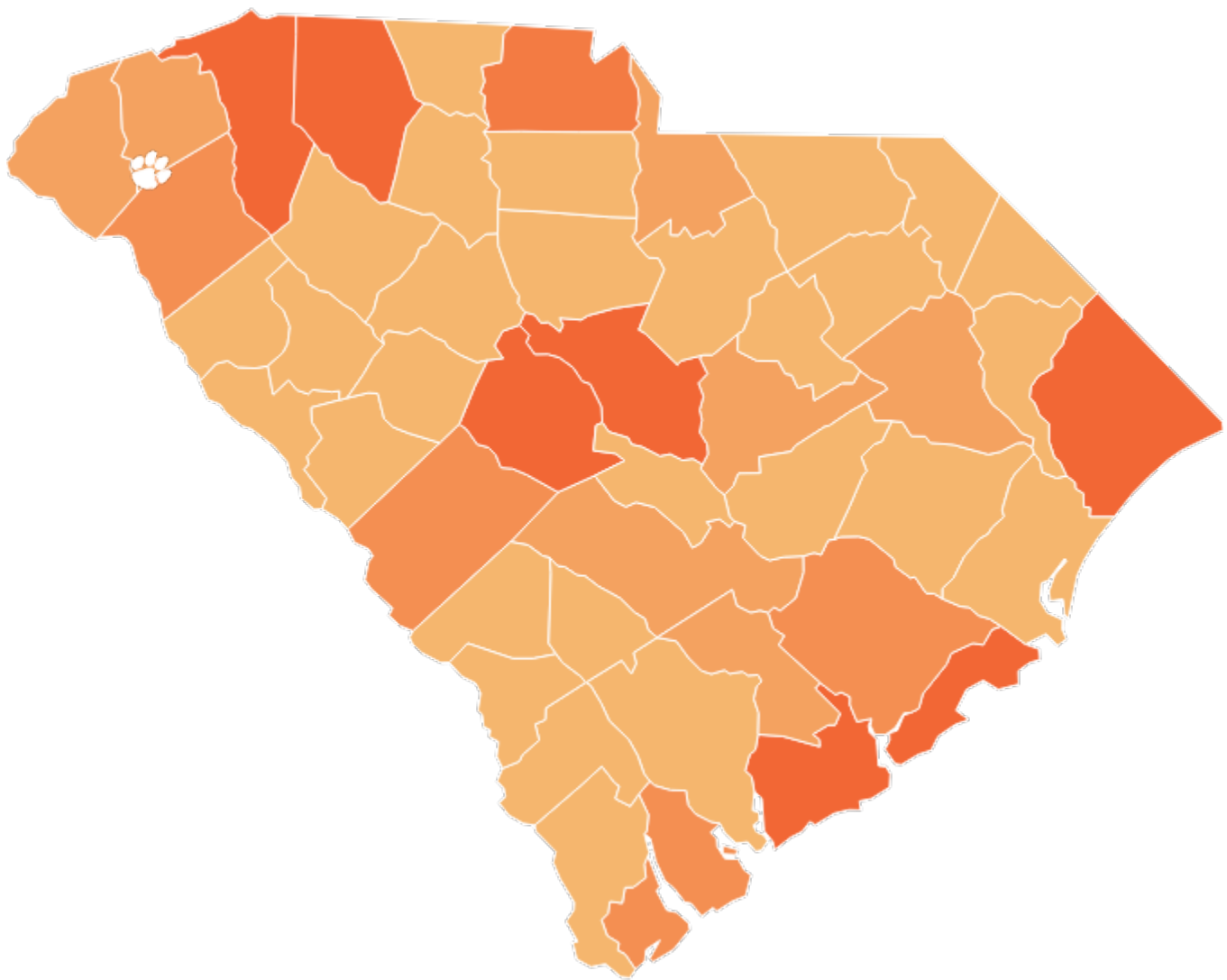
Total estimated Number of Dogs & Cats = 2,347,914



Pet numbers include: Dogs & Cats

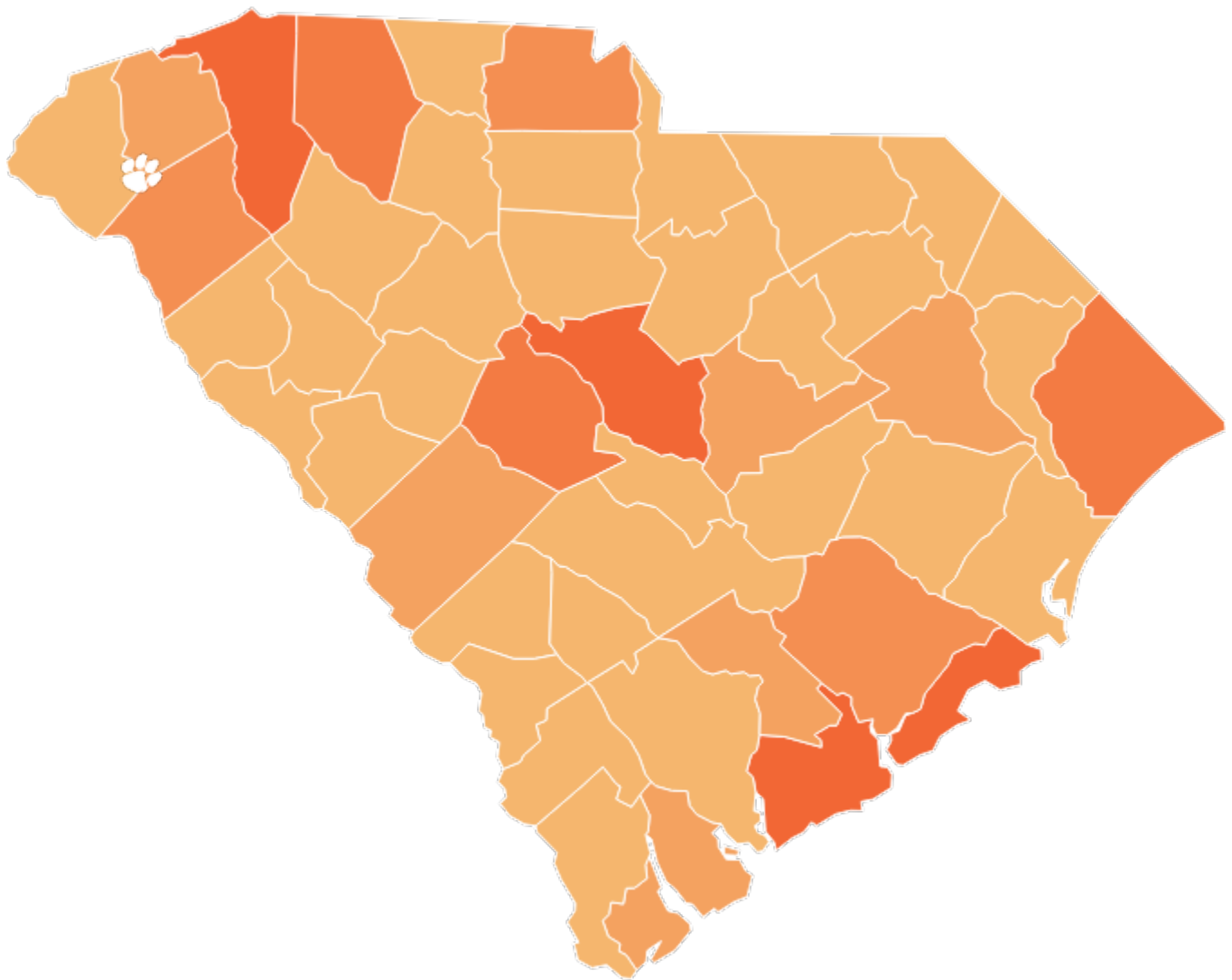
DISTRIBUTION OF DOGS IN SOUTH CAROLINA

Total estimated Number of Dogs = 1,324,012



DISTRIBUTION OF CATS IN SOUTH CAROLINA

Total estimated Number of Cats = 1,023,902

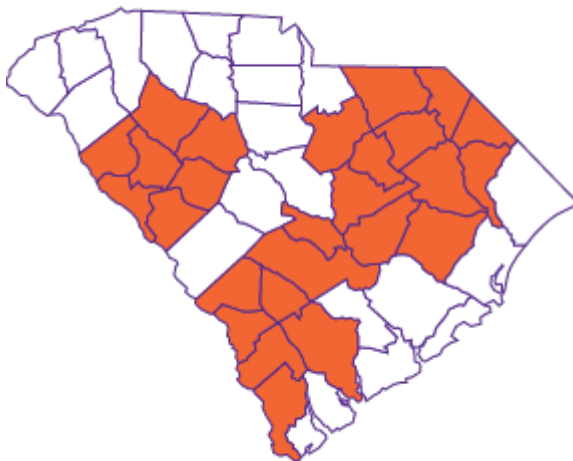


The Federal government recognizes the rural veterinary shortage and supports loan repayment for graduates that go to practice in areas of need.

The United States Department of Agriculture's Veterinary Medicine Loan Repayment Program (VMLRP), authorized by the National Veterinary Medical Services Act (NVMSA) helps qualified veterinarians offset a significant portion of the debt incurred in pursuit of their veterinary medicine degrees in return for their service in certain high-priority veterinary shortage situations. The National Institute of Food and Agriculture (NIFA) will carry out NVMSA by entering into educational loan repayment agreements with veterinarians who agree to provide veterinary services in veterinarian shortage situations for a determined period of time.

The VMLRP will pay up to \$25,000 each year towards qualified educational loans of eligible veterinarians who agree to serve in a NIFA-designated veterinarian shortage situation for a period of three years.

DESIGNATED SHORTAGE AREAS - FY 21

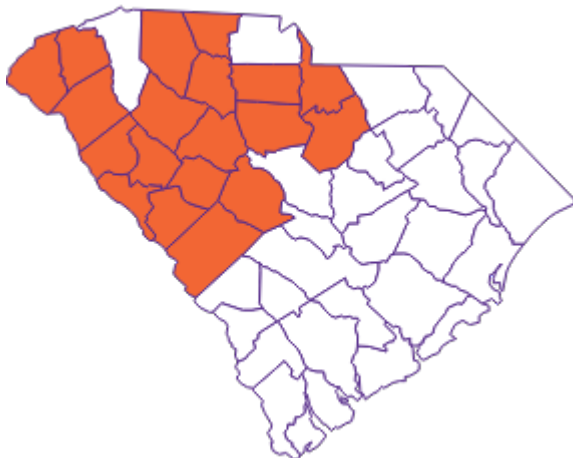


Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: High
SC 211 Counties: Abbeville, Edgefield, Greenwood, Laurens, McCormick, Newberry, Saluda

Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: High
SC 212 Counties: Chesterfield, Clarendon, Darlington, Dillon, Florence, Kershaw, Lee, Marion, Marlboro, Sumter, Williamsburg

Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: Critical
SC 213 Counties: Allendale, Bamberg, Barnwell, Calhoun, Colleton, Hampton, Jasper, Orangeburg

DESIGNATED SHORTAGE AREAS - FY 22 & FY23



Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: High
SC 221 Counties: Aiken, Edgefield, Greenwood, Laurens, Lexington, McCormick, Newberry, Saluda

Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: High
SC 222 Counties: Abbeville, Anderson, Oconee, Pickens

Type II Shortage:
Private Practice – Rural Area Food Animal Medicine
Priority of Shortage: Critical
SC 223 Counties: Cherokee, Chester, Fairfield, Kershaw, Lancaster, Spartanburg, Union

MORE ON THE DISTRIBUTED LEARNING MODEL

Veterinary academia is primarily rooted in a **tertiary** care referral model of clinical education, a model that has been dramatically disrupted in all other fields of health care education. Medical schools began a move away from an exclusive tertiary care model decades ago. Tertiary care referral training hospitals are wonderful places for animals with complex diseases, great for specialty doctors to hone their craft, works well for interns and residents (although more are moving to private practice), but arguably not the best place for fourth year veterinary students. The vast majority of fourth year students will enter small animal companion animal **primary** care practice. Primary care is not emphasized in traditional veterinary academia, and in fact sometimes is denigrated in **tertiary** care training hospitals. Last century, the only place to be exposed to great tertiary care, with the best equipment, from the handful of specialists available, was in a university based veterinary teaching hospital. That's no longer the case. We've had an explosion of fabulous referral hospitals and specialists in every corner of the country. The unintended consequences of an academic model relying almost exclusively on tertiary care referral clinical training includes - lower case volumes, few reps of real-world client interactions, clunky and inefficient systems, little exposure to primary care, a message (intended or otherwise) that cases need referred that perhaps could be handled in a progressive primary care setting, and a resulting shrink in the scope of general practice. Graduates often lack the necessary confidence for entry level practice, in part as a result of tertiary care training.

The good news, more and more schools are moving to a hybrid distributed model of clinical education, a model in which the best of real-world hands-on primary care education exposure is combined with tertiary care training. High quality public and private practices and institutions, both for profit and not for profit, partner with veterinary schools in a best of both worlds approach to clinical education. Shelters, laboratories, industry, tech startups, pharma, governmental organizations, primary care practices are all opening their arms wide as academia is slowly releasing its tight grip on keeping students in their brick-and-mortar facilities for the full four years - a mutual embrace is blossoming. In the hybrid distributive model, the best of the tertiary care model is combined with real world clinical training. This model allows ample time for immersion in primary care and other specialty lanes of veterinary medicine customized to individual student interests. The resulting increase in cases seen and hands on experience in day-to-day primary care results in more competent, confident, and practice ready graduates. Commonly seen conditions are being taught uncommonly well. These community-based or distributive models allow for a deep and mutually beneficial partnership between academia and private practice where both partner to best prepare the next generation of colleagues. Additionally, this is a far more cost-effective model of teaching. Tertiary care referral hospitals are expensive to operate - and in some instances, add to student indebtedness.

More cause for good news from the academic world. Schools are beginning to teach the competencies we all know correlate with success outside of the ivy-covered halls. The American Association of Veterinary Medical Colleges has recently released a significant roadmap called the CBVE that outlines competencies for new graduates. Competencies that include communication, teamwork, leadership, basic practice management, and entry level clinical skills, just to mention a few. In several of the newer veterinary schools like Lincoln Memorial University, students are required to participate in dozens of simulated mock exam room interactions over every semester of their education, where trained actors and actresses help to prepare them for success when they enter real world exam rooms. Students are taking clinical skills labs beginning the first semester of school, getting hands on experience with the basic skills necessary for entry level work. Students are required to demonstrate hands on proficiency in high stakes exams in order to progress in the curriculum. Students are completing mandatory practice management courses including the basics of productivity, compensation, and general financial acumen. Students are participating in leadership courses, teamwork exercises, and conflict scenarios.