

RUTGERS UNIVERSITY EQUINE SCIENCE QUARTERLY



From Our Stable To Yours
Summer 2019

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From The Clubhouse



**I hope to see all of
our fellow alumni
at the upcoming
Alumni Reunion
on August 2nd at the
New Meadowlands
Racetrack!**

Dear Friends,

Happy Summer! All of us at the Equine Science Center have been busy since the semester ended with travel to scientific meetings, preparing for upcoming events, and writing up the research conducted in our laboratories for scientific journals.

On April 27, we hosted an overflow group of people at the Ag Field Day Horse Show and Equine Exercise Physiology Lab. The horses from the Rutgers University Teaching Herd were well-behaved and our student advisors and student exhibitors outdid themselves.

We had a surprise visit from Chancellor Christopher Molloy at the treadmill barn, where Ken McKeever and I were able to share with him some of the latest research ongoing in the lab. Check out more pictures and a story about Ag Field Day on **Page 6**.

The Center is very proud of its faculty and students who have recently been recognized by the university and scientific associations.

Congratulations to Carey Williams, who was promoted to Full Professor on June 19 and received The American Feed Industry Association's Award for Equine Nutrition Research at the Equine Science Society Symposium in early June.

During the Symposium, we had a great time hearing about the latest in equine science, visiting with longtime friends, and making new acquaintances.

While we were there, outgoing ESS President Ken McKeever found out that he had been elevated to the rank of Fellow of the American Physiological Society (FAPS).

This elevation recognizes his over 30 years of work within the field of physiological science. Way to go Ken!

The Equine Science Center didn't stop there, graduate student, Jennifer Weinert (advisor Carey Williams) won her division (Production and Management) of the Graduate Student oral presentation competition.

You can check out Jen's research in the "From the Lab" section on **Page 10**.

I am extremely proud of my colleagues and students who represented Rutgers very well.

On July 10, we hosted our annual Summer Showcase. Ellen Rankins wowed the crowd with a demonstration of electromyography that Ellen will use for her Ph.D. research involving equine assisted activities and therapies.

Special guests included a group from Promise Day Habilitation in North Brunswick and a group of kids from Scarlet KIDS Camp at Rutgers University. For pictures of all of the fun, see **Page 14**.

Since we spoke last, the Center released its 2017-2018 Annual Report. The report is full of information about the research and outreach activities that have been going on for the past fiscal year. Please take a look at:

<http://bit.ly/ESC20178-2018AnnualReport>

On Friday, August 2, we are hosting an alumni event at the New Meadowlands Racetrack in East Rutherford in conjunction with the annual Hambletonian Veterinary Conference Dinner.

This event is chaired by RUBEA co-chair and Rutgers alumna, Amy Butewicz, and features a welcome from New Meadowlands CEO and Chairman, Jeff Gural.

What a great time to reconnect with fellow alumni. Hope to see you there! For information about the event take a look at the flyer on **Page 13**.

As I look back on the past several months, the faculty, students, and staff have a lot of reasons to be proud.

We hope that you all agree and that you enjoy reading this latest edition of the Equine Science Quarterly. See you at a Center event soon!

See you there!

All the Best,
karyn

PARTNERS



New Jersey Farm Bureau's primary purpose is to represent the overall interests and improve the financial well-being of farmers and our \$800 million industry. NJFB activities are supported through voluntary membership and annual dues. Members have access to:

- Staff assistance on farming issues and regulatory problems.
- Educational workshops on topical issues such as farm labor, wildlife damage, and zoning.
- Weekly updates on legislation news and regulations affecting all aspects of farming.

It pays to be a NJ Farm Bureau member! For a full list of membership levels and benefits, or to sign up, visit: www.njfb.org.



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The New Jersey Department of Agriculture (NJDA) is an agency which oversees programs that serve virtually all New Jersey citizens. One of the Department's major priorities is to promote, protect and serve the Garden State's diverse agriculture and agribusiness industries.

In addition to the programs we offer to support production agriculture, NJDA also manages programs that feed schoolchildren, distribute surplus federal foods to soup kitchens and pantries that serve our needy citizens, conserve precious soil and water resources, protect farmland from development and preserve it for future agricultural use, expand export markets for fresh and processed agricultural products, and promote our commercial fishing industry, and administer the complete program of agriculture, food and natural resource education, which includes the State FFA Association.

For more information about NJDA, please visit: www.nj.gov/agriculture

UPCOMING 2019 EVENTS

2019 Hambletonian Continuing Education Seminar: Wet Labs

Thursday, August 1, 2019

Meadowlands Racetrack
1 Racetrack Drive
East Rutherford, NJ 07073

Gordon@firstchoicemarketing.us

2019 Hambletonian Continuing Education Seminar

Friday, August 2, 2019

Hilton Meadowlands Hotel
2 Meadowlands Plaza
East Rutherford, NJ 07073

Gordon@firstchoicemarketing.us

8th Annual Open Space Pace and Festival of Horses

Saturday, September 21, 2019

Freehold Raceway
130 Park Ave
Freehold, NJ 07728

www.facebook.com/Openspacepace/

Evening of Science & Celebration

Thursday, November 14, 2019

Cook Student Center
Rutgers, The State University of NJ
New Brunswick, NJ

kylehart@njaes.rutgers.edu

For more events, visit our website @ esc.rutgers.edu



EQUINE SCIENCE CENTER

Showcased At The 2019 Equine Science Society Symposium

Faculty and student representatives from the Equine Science Center traveled to Asheville, North Carolina for the 2019 Equine Science Society Symposium, hosted by North Carolina State University.

This biennial event provides the opportunity to hear about the latest research being conducted from around the world, involving horses and equine-related activities, and is a great time to catch up with colleagues and alumni.

Center faculty and students returned home with several honors to add to their curricula vitae.

The first full day of the conference is filled with student presentations as undergraduate and graduate students vie for top honors in the oral presentation competitions.

Jennifer Weinert, a PhD candidate under Carey Williams, took first place in the Production and Management section for her presentation entitled “Implementation of a chew-sensor based technology as a tool for equine grazing research”.

Jennifer went on to take second place overall with this abstract and was invited to submit a full paper to the Journal of Equine Veterinary Science.

At the Equine Science Society business meeting Kenneth McKeever, Professor in the Department of Animal Sciences at Rutgers University, and Associate Director of Research at the Rutgers Equine Science Center, was recognized as the outgoing Equine Science Society President.

McKeever served two-years as president of the Equine Science Society Board.

During the week, McKeever also received notification of his elevation to the rank of Fellow of the American Physiological Society (FAPS).

The elevation to this status recognizes his over 30 years of work within the field of physiological science. McKeever became the first Rutgers University professor to attain this status.

At the Equine Science Society business meeting Ellen Rankins, PhD student under Karyn Malinowski and Kenneth McKeever, was elected to serve a two-year term as the graduate student representative to the executive board of the Equine Science Society.

As the graduate student representative, she will

be responsible for being the voice of the graduate students in the organization and organizing graduate student activities.

At the ESS awards banquet, Carey Williams, Extension Specialist in the Department of Animal Sciences at Rutgers University, and Associate Director of Extension at the Rutgers Equine Science Center, was awarded The American Feed Industry Association's Award for Equine Nutrition Research.

The award is used to help stimulate excellence in equine nutrition research, and is given every other year in combination with the Equine Science Society Symposium.



Carey Williams receiving the American Feed Industry Association (AFIA) Equine Nutrition Research Award from the AFIA representative and the past Equine Science Society president, Kenneth McKeever.



Jennifer Weinert receives her 1st place award in the Production and Management Graduate Student Oral Presentation Competition from Bob Coleman, ESS executive director, and Kenneth McKeever, past ESS president.





Ag Field Day at Rutgers Day

The Equine Science Center was pleased to welcome another large crowd at this year's Ag Field Day at Rutgers Day.

With 750 "Equine Science 4 Kids" Sports Bags given away by 12pm, the Center lost count of how many people stopped by to visit the Equine Exercise Physiology Lab.

Special guest visitors, Rutgers University - New Brunswick Chancellor Christopher Molloy, and Rutgers School of Environmental and Biological Sciences Executive Dean, Bob Goodman, toured the Equine Exercise Physiology Laboratory with Center Director, Karyn Malinowski, and Associate Director for Research, Kenneth McKeever.



Throughout the day, attendees were welcomed into the Exercise Physiology Lab where they toured the facilities and met the research horses face-to-face. The horses always enjoy the day as they are the stars and capture everyone's attention.

The "High-Speed Treadmill Demo" at 1 & 2pm filled the Lab to capacity, and was one of the favorite events for everyone in attendance.

On the treadmill this year was Jolee, one of the Standardbred research mares at the University.

Malinowski met with future and incoming students to discuss what the Department of Animal Sciences at Rutgers has to offer.

The Center staff looks forward to meeting the next batch of future equine scientists next year at Ag Field Day at Rutgers Day 2020.

Be sure to take a look at all of the fantastic pictures from the day!:
<http://bit.ly/RutgersDay2019>

The Rutgers University Mounted Patrol: A One-Of-A-Kind Student Organization

Continued from Pg. 1



Norman, a Rutgers University Mounted Patrol horse, enjoys his newly renovated box stall thanks to a generous contribution from an anonymous donor.

Take a walk on any of the unpaved paths around the Cook-Douglass campus, and you're likely to see some hoofprints mingling with footprints, a sure sign that the Rutgers University Mounted Patrol (RUMP) recently passed by.

The Mounted Patrol has a long history at Rutgers. In fact, the step bridge spanning George Street between Loree and Hickman Halls was designed specifically to be negotiated by officers on horseback!

Originally established in the 1970s, the Mounted Patrol was a program under the Rutgers University Police Department (RUPD), and was staffed by RUPD officers.

Over time, the Mounted Patrol transitioned into a division of the Rutgers Community Service Officer (CSO) program, which is overseen by the Rutgers Public Safety Department.

Today's RUMP maintains a staff of approximately twelve student CSOs, making it the only student-run mounted patrol service in the United States.

In addition to being a division of the CSO program, RUMP is also a student club which allows the group to participate in events such as Relay For Life, Monster Mash, and Ag Field Day at Rutgers Day.

Additionally, RUMP is closely associated with the Rutgers farm staff, who provide daily care for the three RUMP horses; Austin, Norman, and Kash.

Last year, RUMP received a generous contribution from an anonymous donor that enabled the Mounted Patrol to renovate their barn.

The Mounted Patrol barn was originally an animal nutrition barn and was repurposed to serve as an equine barn for the RUMP horses. However, the barn's history remained quite apparent.

Prior to the recent renovations, the building was better suited to being an animal nutrition barn than a working mounted patrol barn.



Rutgers University Mounted Patrol Officer, Kaitlin Quinn, with her Mounted Patrol horse, Norman, and Rutgers University Mounted Patrol Officer, Lara Watrous, with her Mounted Patrol horse, Austin, pictured in front of the Mounted Patrol's trailer used in transporting the horses.

The layout of the three original stalls resulted in a cramped floorspace, and there were no places to set saddles and other equipment while tacking up horses to go out on patrol.

“It was a really tight area,” says RUMP officer Lara Watrous, describing the layout of the barn prior to the renovations. “You could not turn a horse around inside here.”

The newly refurbished barn has a total of four box stalls with a more horse-friendly layout, a wash area, and a significantly more open floor space.

Both Lara and her fellow RUMP officer Kaitlin Quinn say the new renovations have made their jobs not only more convenient, but safer as well.

Officers can now safely turn horses around within the barn, and the newly installed folding saddle racks allow the officers to tack up their horses much more efficiently.

As is often the case on a farm though, there is always something new to be done. The Mounted Patrol is hoping to install a drainage system for their wash area in the near future.

Becoming a member of the Mounted Patrol requires a fairly rigorous application process.

Applicants must first apply for and get accepted into the Community Service Officer program through the Rutgers Public Safety Department.

Once accepted, applicants can then apply for a position on the Mounted Patrol.

Continued on Pg. 12



EquiWatch System halter being worn by Frankie during the pilot study for collection of feeding/grazing behavior data.

Lab Notes - Malinowski

From The Lab:

The EquiWatch System:
A Novel Tool for
Monitoring Equine
Grazing Activity



EQUIWATCH SYSTEM
VALIDATION: THE
TOP 5 RESULTS

#1

Behaviors such as drinking or biting at flies are not recorded as feeding behaviors by the EquiWatch System.

#2

The EquiWatch System could not distinguish between prehensile grazing bites and mastication chews in the grazing horse.

Assessments of equine grazing behavior have traditionally been conducted using time- and labor-intensive observational protocols.

Remote automated monitoring of horses on pasture represents a novel alternative, but this approach has not been widely adopted in equine pasture research.

The EquiWatch System (Itin + Hoch, GmbH, Liestal, Switzerland) is a chew-sensor based technology that incorporates a pressure sensor (primary sensor) and a triaxial accelerometer (secondary sensor) into the noseband of a standard halter.

This system was derived from the RumiWatch System, which was developed both as a tool for research and for precision management of cattle in a large feedlot setting.

The RumiWatch System not only accurately reports grazing time, but can also distinguish between and count individual prehensive bites and rumination chews in cattle consuming pasture forage.

In 2018, researchers at Rutgers University validated the EquiWatch System for monitoring grazing activity of pastured horses.

This study found very high agreement between system-reported grazing time and complementary visual observations

(concordance correlation coefficient [CCC] = 0.997).

While the EquiWatch System could not differentiate between prehensive bites and mastication chews in the grazing horse, there was a very high agreement between the sum of manually-counted bites and chews and the total chews reported by the EquiWatch System (CCC = 0.979).

Furthermore, evaluation of negative control periods in which horses were locked in a dry lot (no grazing/eating) confirmed that the EquiWatch System was not recording other activities with an oral component, such as biting at flies or drinking, as a feeding behavior.

This study demonstrated that the EquiWatch System can be used to determine when horses are grazing, duration of grazing bouts, and how vigorously horses are consuming pasture forage.

In the future, researchers at Rutgers will implement this system to examine the impact of various biological, environmental, and dietary factors on equine feeding and grazing behaviors.

In an upcoming edition of From the Lab, we will highlight results from our first EquiWatch System pilot study evaluating feeding behaviors of horses maintained on pasture versus an ad libitum hay diet.

#3

Data generated from the EquiWatch System can be used to assess the timing and duration of grazing as well as how vigorously horses are consuming pasture forage.

#4

There was very high agreement between total chews recorded by the EquiWatch System and the sum of manually-counted bites and chews (Concordance Correlation Coefficient = 0.979).

#5

The agreement between grazing time reported by the EquiWatch System and visual observations was very high (Concordance Correlation Coefficient = 0.997).

The Rutgers University Mounted Patrol: A One-Of-A-Kind Student Organization

Continued from Pg. 9



Mounted Patrol horses, Norman and Austin, pose with Rutgers University Mounted Patrol Officers, Kaitlin Quinn and Lara Watrous in the horse's paddock area. When not on patrol, the horses can be found in their paddock enjoying some time with their fellow Mounted Patrol horses.

This application process consists of a written horse knowledge exam covering topics such as equine medicine and anatomy as well as a practical exam.

Applicants must demonstrate ground skills such as catching, grooming, and tacking a horse as well as the riding skills that one would be required to use while on a patrol—trotting or handling a spooking horse, for example.

If the applicant is then accepted into the

Mounted Patrol, they will spend their first semester patrolling with one of the RUMP supervisors.

Both Lara and Kaitlin agree that the application process was well worth the reward.

To learn more about the Rutgers University Mounted Patrol, or if you are interested in becoming a Rutgers University Mounted Patrol member, visit:

Rutgers University Mounted Patrol Website:
<https://rumounted.wixsite.com/rump>

Rutgers University Mounted Patrol Facebook:
<https://www.facebook.com/rumounted/>

Equine Science Center

Alumni Reunion

Join Us:

Friday, August 2nd
6:30pm - 9:00pm

At The:

New Meadowlands
Racetrack

1 Racetrack Drive,
East Rutherford, NJ 07073



Register for the event:
<http://bit.ly/ESC2019AlumReunion>

REUNITE WITH OTHER
EQUINE INTEREST ALUMNI
FROM RUTGERS UNIVERSITY



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Presented by: **The Equine Science Center**

RUTGERS

New Jersey Agricultural
Experiment Station

Admission: \$75

*Please join us for dinner, a welcome by New Meadowlands Racetrack CEO
and Chairman, Mr. Jeff Gural, and live harness racing.*

To learn more about the Equine Science Center visit us at esc.rutgers.edu



SUMMER SHOWCASE

On July 10, the Equine Science Center hosted over 125 equine enthusiasts, and aspiring young scientists.

Special Guests included Brian Schilling, Director of Rutgers Cooperative Extension, Warren Zimmerman, co-chair of the Rutgers University Board for Equine Advancement, a group of adults with special needs from Promise Day Habilitation, and a group from the Scarlet KIDS Camp.

The Rutgers University Mounted Patrol welcomed attendees to the Roundhouse. Jolee wowed the group as she paced on the high speed treadmill.

Everyone then split into groups and rotated through three additional sessions.

New faculty member, Anna Hausmann, hosted the Equine Jeopardy game, Ph.D. candidate, Jennifer Weinert taught the anatomy lesson with RU Wishbone, and Ph.D. fellow, Ellen Rankins dazzled her sessions with a demonstration of electromyography which is a technology used in human medicine to measure muscle contraction.

When Ellen fed her equine assistant Allie a hay cube, Allie's mastication was shown to the group as wave activity on the computer screen!



For more pictures from the Summer Showcase please visit:
<http://bit.ly/SummerShowcase2019Pics>

Oh, The Places We've Been...

Karyn Malinowski Visits Delaware Valley University As A Guest Lecturer



2019 Month of the Horse Opening Ceremonies



Malinowski Hosts One Of The Sessions At The 4-H STEM Ambassador Program



Kenneth McKeever Gives A Presentation To Veterinary Students In Recife, Brazil



McKeever Lectures At A Veterinary Conference Held In Sao Paulo, Brazil



NELSON'S CORNER



I've been in a rather reflective mood lately. I guess that's what happens when you're as old as I am. All of this thinking has taken me back to the days when I was trying to decide what I wanted to do with my life. Boy, I sure am lucky I ended up as a part of the mounted patrol team. Can you imagine how sad I would have been without all of the opportunities to make new friends and try exotic foods? (My life would be incomplete without the donuts I've come to love!). My journey as a member of the mounted patrol and mascot for the Equine Science Center would have never been possible without the guidance and wisdom of my friends

and mentors. Now it's my turn to serve as a mentor and provide suggestions for YOUR future career. I had this wonderful idea to explore many of the different career options available in the equine industry by interviewing some of our friends and former students here at the Center. I don't know if you've noticed, but my hooves make holding a phone and typing a little bit difficult. I've recruited my friends at the Center to give me some help, but you can be confident that all of the brain power behind these interviews belongs to me!

Join me as we begin our exploration of equine related careers. Hopefully, this series will give you some ideas of what you want to do later in life. For this first installment, Jessica Martin of Mountain Pointe Equine Veterinary Services visits with us about her job as an equine veterinarian. Martin is an alum of Rutgers University, so she is a fabulous person to kick off this series!

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Lord Nelson (LN): What does your typical day at work look like?

Dr. Martin (Doc M): There is hardly a typical day in the life of a traveling horse vet, because we see so many different types of cases. These can include routine vaccinations and health check-ups, field surgeries such as castrations, and lameness evaluations with treatments to prepare horses for competition. It is common for my schedule to change throughout the day, because sick horses may need to be treated urgently. I spend a fair bit of time in the car, driving from one farm to another, and do all of the paperwork with a technician at that time. I am on call for after-hours emergencies on evenings and weekends, just in case a horse is feeling sick or hurt!

LN: What is your favorite part of the job?

Doc M: My favorite part of my job is building relationships with horses and horse owners. As a veterinarian, they both look to you for support during difficult times, and share with you their successes during triumphant times. I also enjoy spending my time outdoors and with the horses (even in the winter), and I feel blessed to have a job that keeps me active!

LN: What is your least favorite part of the job?

Doc M: My least favorite part of the job is sometimes knowing that you cannot treat or help an animal for financial reasons. As a veterinarian, I am an animal lover and would love to help every animal, but we know that the services we provide ultimately cost money that the owners can sometimes not afford. In addition, a common issue with veterinary medicine in general is that many veterinarians are struggling with a huge amount of student debt, which is concern not only for me but my veterinary peers.

WHAT WILL YOU DO WHEN YOU GROW UP?

CAREER: EQUINE VETERINARIAN

LN: If someone were considering a similar career path, what advice would you offer to them?

Doc M: I would recommend studying hard and getting as much hands-on experience as you can. By this, I mean shadowing different veterinarians, both large and small animal, on a volunteer or paid basis. This will give you a good idea of whether you think this is the right career path for you. Do your research! Find a veterinary school that fits you, and make sure to get the facts on what it will financially cost you to attend that school. Make sure your expectations are set and go for it, you will be excellent.

LN: What is your most memorable or favorite memory?

Doc M: When I was an intern during my first year as a veterinarian, I remember receiving a call for a sick baby horse, referred to as a foal, that had pneumonia and was coming in as an emergency. About one hour later, a pick-up truck drove up and I opened the back door to find a tiny, premature foal lying flat out on the back seat. He was severely sick and dehydrated and needed oxygen, fluids and antibiotics as soon as possible. As a young vet, this critical patient was dying before my eyes, but quick acting from my fellow team of veterinarians and staff allowed us to stabilize the foal. Several weeks later, this foal was alive and thriving! He was eventually able to go back home to his owner to hopefully live out a long and happy life.

LN: What made you decide on a career as a veterinarian and how did you establish yourself within this field?

Doc M: I knew that I wanted to be involved with animals, specifically the equine industry. I grew up riding and competing horses from a young age, and have always felt at home in a barn setting. In school, I had an interest in science and therefore decided that the veterinary field would fulfill both of these interests. I attended Rutgers University School of Environmental & Biological Sciences with a major in Animal Science (Pre-Vet), followed by Ross University School of Veterinary Medicine to obtain my DVM. I completed an internship at Mid-Atlantic Equine Medical Center in Ringoes, NJ for 1.5 years following graduation from veterinary school. During my time at Rutgers, I took a course entitled "Advanced Equine Health Care and Management" taught by Michael Fugaro, and he served as a mentor for me throughout my continued years in veterinary school and my internship. I joined his practice, Mountain Pointe Equine Veterinary Services in Long Valley NJ, as his first associate veterinarian in July of 2018. I attribute much of my success in life to the opportunities provided at Rutgers for hands-on experience, such as the 4 years spent working as a work-study student in the Animal Care program at the Rutgers Farm.

LN: Thank you for sharing your thoughts and insights with us Doc Martin!

Doc M: It was my pleasure Nelson!

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I hope you gained some insight into life as a vet. I know I learned some new things about vets and my friend Doc M! Keep your eyes peeled for the next installment in our series. I have some great ideas about what careers I want to explore next! If you have a particular equine career you want to learn about, let me know and I'll see who I can line up for an interview! I'll have another fun career to highlight! To follow along and stay up to date on the latest in my equine careers blog series and my other amazing blogs, make sure to follow Nelson's Blog at:

<https://esc.rutgers.edu/blog/>.

Your pal,
Lord Nelson

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