

RUTGERS UNIVERSITY EQUINE SCIENCE QUARTERLY



From Our Stable To Yours
Summer & Fall 2024

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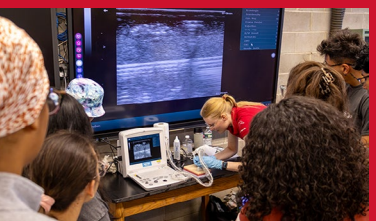
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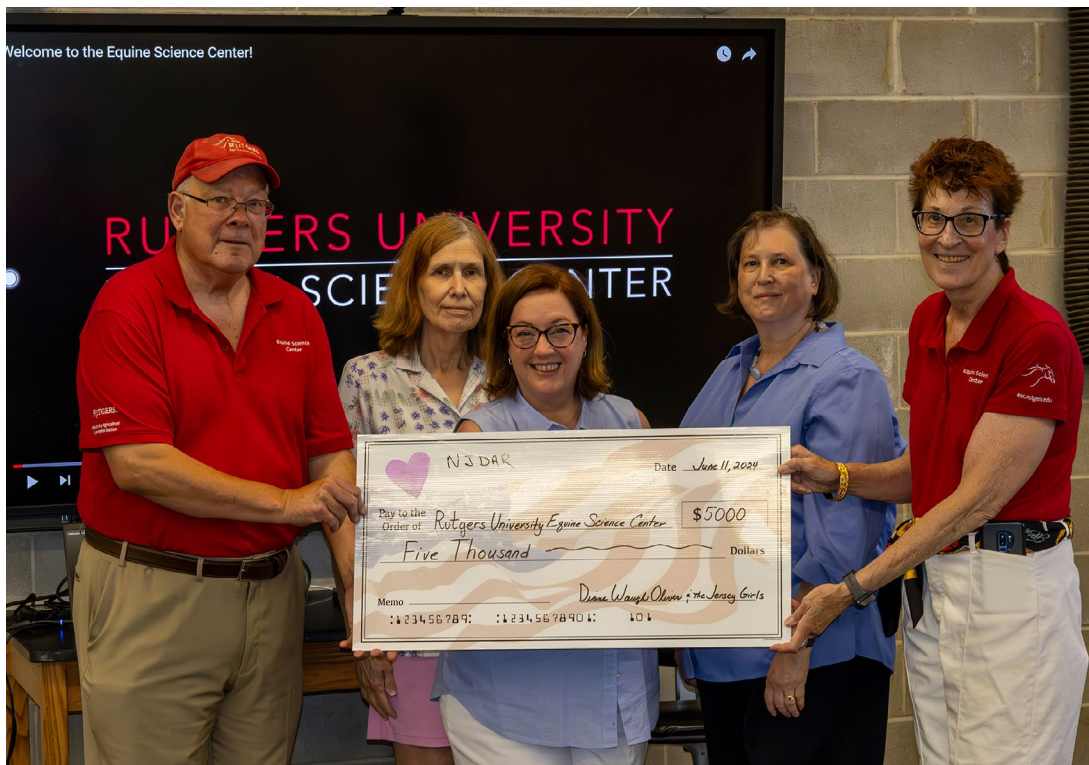
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USDA NextGen Animal Science Discovery Program



VIP Guests At The 2024 Summer Showcase Present Center With \$5000 Check In Honor Of Veterans Research

The Equine Science Center had a successful Summer Showcase this past July, showcasing the cutting-edge research, outreach, and educational resources that the Center has to offer.

This year's event started with an

introduction to the Equine Science Center by Center Director, Dr. Karyn Malinowski. She highlighted some of the research that the Center had been focusing on this past summer, as well as what the plan would be for the fall semester.

From The Clubhouse



We can't wait to see you
at the 2024 Evening of
Science & Celebration
on November 14, 2024!

Dear Friends,

After a long, hot summer, I hope you are all enjoying the coolness and colors of fall. I know our equine friends are too! The fall semester is in full swing after what turned out to be a VERY busy summer. For the first time the Equine Science Center was a stop on Bring Your Child To Work Day. Kids from across campus joined their parents who work at Rutgers to see exactly what happens at RU. For some great pictures, and the fully story, take a look at [Page 8](#).

Ag Field Day At Rutgers Day ([Page 10](#)) and the Ag Field Day Horse Show ([Page 12](#)) saw attendees such as President Holloway, friends and family of those competing in some of the many animal shows, and visitors from far and wide.

In June the Center faculty and staff gave a treadmill demonstration and update on current research to attendees of the Animal Science Discovery Program, hosted and overseen by Dr. Aparna Zama from the Department of Animal Sciences. In post-program presentations all of the students stated that their favorite part of the week-long program was the horses! But, of course! See story on [Page 16](#).

The Month of the Horse Opening Ceremonies & Awards Presentation saw quite a few of our students receive awards in the form of scholarships. For the full story, and learn who our very deserving students were, see [Page 22](#).

This year our Summer Showcase included special guests from the Daughters of the American Revolution, who presented the Center with a donation in honor of the work that was conducted here, as well as New Jersey Department of Agriculture Secretary Edward Wengryn. Read the story starting on [Page 1](#) to find out about all of the new demos and tours that were offered!

On July 7, I attended the annual board of directors meeting and the Hall of Fame dinner at the Harness Racing Museum and Hall of Fame in Goshen, New York. The board along with the Hambletonian Society is making plans to celebrate the 100th anniversary of the Hambletonian in 2025, which includes a stop for international visitors at the Rutgers Equine Exercise Physiology Lab here in New Brunswick.

Our own Dr. Alisa Herbst presented a talk on the care and management of senior horses at the Annual Hambletonian Veterinary Conference in August. The Equine Science Center tabled at the event and it was nice to catch up with longtime colleagues and friends. Dr. Herbst received great reviews in post-seminar evaluations.

Speaking of Dr. Herbst, take a look at what she has been researching in the From the Lab section on [Page 14](#), as well as the research that she has just started on [Page 26](#).

Dr. McKeever and I are in the middle of our Topics in Equine Science class which is an upper class course where we teach the students to critically review referred journal articles related to a variety of topics of importance to horses and the equine industry. How refreshing it is to work with these brilliant young minds!

On October 8 RUBEA member Taylor Palmer, Kyle Hartmann and I attended President Holloway's Annual Stakeholder address at Jersey Mike's Arena. President Holloway is a dynamic speaker, and his remarks included recognition of student leaders at Rutgers and a big thanks to RU supporters. His remarks were followed by a lovely reception where we had time to visit with others.

Mark your calendars for our annual Evening of Science and Celebration scheduled on Thursday, November 14 from 6-9PM at the Cook Student Center, sponsored by Mid-Atlantic Equine Medical Center. Our keynote speaker this year is Dr. Sue McDonnell, a renowned equine behaviorist from the University of Pennsylvania's School of Veterinary Medicine. We also will have presentations from 4-H, our previously funded scientists, and the presentation of the "Spirit of the Horse" award which will go to Dr. Amy Butewicz. Well deserved Amy! Dr. Butewicz has given so much to the equine industry beginning when she was a 4-H member in Middlesex County. Come on out for a great dinner and to support Amy! See the flyer on [Page 20](#).

Finally, peruse the newsletter for other event flyers about the [Horse Management Seminar: Live!](#) and the [Horse Management Seminar: Webinar Series; Fact Sheet](#) updates; and information on how to join [Lord Nelson's Blog](#). This newsletter is jam-packed with information!

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:

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- 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.

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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



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UPCOMING 2024 - 2025 EVENTS

Evening of Science & Celebration

Thursday, November 14, 2024

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

go.rutgers.edu/Evening2024

Horse Management Seminar Live!

Saturday, February 1, 2025

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

go.rutgers.edu/2025HMSLiveReg

Horse Management Seminar: Webinar Series

Tuesday, February 11, 18, 25, 2025

Topics Include:
Farm Management on Feb. 11th
Nutrition on Feb. 18th
Horse Health & Welfare on Feb. 25th

go.rutgers.edu/2025VirtualHMSReg

Junior Animal Science Symposium

Saturday, March 29, 2025

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

amelia.minervini@rutgers.edu

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

VIP Guests
At The 2024
Summer
Showcase
Present
Center With
\$5000 Check
In Honor
Of Veterans
Research





Next, Dr. Kenneth McKeever gave a high-speed treadmill demonstration, which gave the audience an up-close view of Jolee on the equine treadmill. The demo highlighted why the horse is used as a research model, the equipment that is used during a high-speed exercise test, and the type of information that can be gathered via the use of this equipment.

Special guests at the event included representatives from the New Jersey delegation of the Daughters of the American Revolution. They took part in a presentation to the Center of a check for \$5,000 in recognition of the work which was conducted using Equine Assisted Activities to help veterans with Post-Traumatic Stress Disorder.



Dr. Karyn Malinowski (two from the left) poses with New Jersey Department of Agriculture Secretary Edward Wengryn (center left) and representatives from the County Animal Response Team (CART) of Middlesex County.

The Center was also joined by the New Jersey Department of Agriculture Secretary, Mr. Edward Wengryn.

Secretary Wengryn has been recognized for his service to the Equine Industry, receiving the NJ Horse Person of the Year award in 2021, and currently serves as Co-Chair of the Rutgers University Board for Equine Advancement (RUBEA).

After the check presentation and short remarks, attendees were then broken into groups that rotated through two sessions highlighting the work at the Center.

Dr. Alisa Herbst demoed the Center's new 3D Scanner which is being used to look at muscle mass on a few of the current research projects. Attendees were then given the chance to be scanned as a part of demo, resulting in some interesting group pictures (which can be found on the next page).

Drs. McKeever's and Malinowski's session gave a lab tour answering attendees' questions about

the type of research conducted at the Center. From racing to horse health, the questions ran the gamut of all things equine.

Once the attendees rotated through both stops, everyone took a small trip over to the newly renovated Animal Sciences Anatomy Lab.

This space is used throughout the year to teach the department's anatomy courses and includes multiple animal models and skeletons.

Dr. Taylor Ross used the space to give an equine anatomy lesson, using the always popular equine articulated skeleton RU Wishbone! She covered both the basics of equine anatomy, as well as how some of the bones, and grouping of bones, compare to a human model.

Overall a great day, attendees were thrilled to see the novel equipment that the Center uses, get a behind the scenes tour of the newly renovated lab, and even get some time interacting with the research herd.





2024 Bring Your Child To Work Day

At this year's Bring Your Child to Work Day over on the Cook Campus, kids were treated to a choose-your-own adventure-style day.

Eight different activities to choose from were provided throughout the day, with most of them being offered twice. So, if you had to miss one, you

were able to see it again at a different time.

They included things like "Pot Painting" at the Rutgers Gardens, "Sketching" with Landscape Architecture, "Under the Microscope" with Microbiology, Tours of the Rutgers Greenhouses, and other fun events at Nutritional Sciences, 4-H, and Marine Sciences.



The Equine Science Center offered a tour of the Equine Exercise Physiology Lab with a High-Speed Horses Treadmill Demo, offered twice during the day, with around 15-25 attendees joining in on the fun during each session.

The kids were treated to a treadmill demo, learned about some of the equipment in the lab, and were even able to get a picture with our very own Jolee.

Art, one of the geldings that is part of our research herd, was hooked up to electrocardiogram (ECG) equipment and attendees were able to see

how excited he was to meet everyone.

Then it was back to Jolee to show off the 3-D Scanner, and show how a 3-D picture of a horse is analyzed by the researchers to look at things like muscle mass, fat, and body composition.

The kids were super engaged, and asked questions that included “What’s your typical day like,” “How do I get into Rutgers,” and various questions about the horses on campus.

To end the tour everyone took a picture with Jolee and left with their very own “Equine Science 4 Kids!” bag.



Rutgers University President Jonathan Holloway was joined by his wife Asling Colon, and Department of Animal Sciences Chair Dr. Nicholas Bello, as he toured all of the events happening on the Cook Farm for Rutgers Day. Led by Research Farm Manager, Clint Burgher, the tour included the numerous animal shows, demos, and facility tours offered throughout the morning.

2024 Ag Field Day At Rutgers Day Sees A Return Of Giant Crowds & Even Bigger Smiles

The 2024 Ag Field Day at Rutgers Day saw the return of tons of attendees to Rutgers University, and the Cook Campus and Cook Farm in particular, for a fun-filled day celebrating all things Rutgers.

The turnout was really great to see after the low attendance last year due to the weather; and covered the campus with alum, students, and friends of Rutgers.

Student volunteers at the Equine Science Center gave away over 2,000 of the horse coloring

bags and “Equine Science 4 Kids!” activity books.

Activities included “Take your picture with a horses” in the morning, which saw lines snaking through the lab and out the door.

The Center had the yearly visit from President Holloway and his wife Asling Colon, who are always glad to stop by and see not only the horses but also the faculty and staff.

Both of the “High-Speed Horses” demos went off without a hitch, and everyone was thrilled to see Jolee in action.



Ag Field Day Horse Show



Pattern #1 had two different heats with the top two students from each heat going to the championship round.

Ryland Hagen who handled Cougar was awarded Champion, and Hannah Hickey who handled Wisser received Reserve Champion.

Pattern #2 was a bit different and five of the horses were in one class, with the top three making it into the championship round.

However, they didn't keep their same horses. The students randomly selected from the top three horses and showed a different horse in the championship round to really test their horse handling and showing skills.

The top three pairs that competed ended in almost a 3-way tie! The judge this year, Rebecca Bittner from the University of Maryland, said

“it was an extremely tough class and all of the competitors were only about a half a point apart! Well done to all students and horses!”

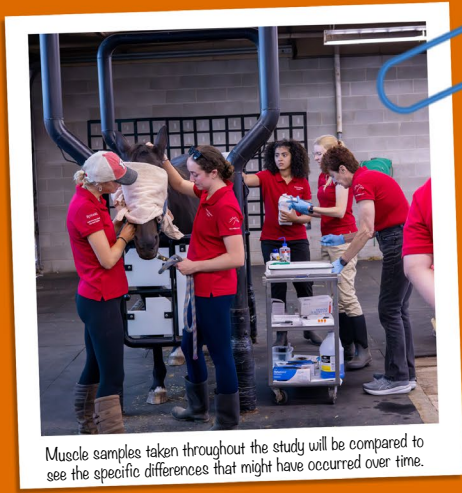
Kirsten Solveson was awarded the Champion. Normally handling Wisser in the class, her horse for the championship round was Mazel.

The reserve Champion was Gilana Rincon (normally handling Mazel in class) drew Cougar as her championship round horse.

Honorable mention in the championship round was Adriti Singh (normally handling Cougar throughout the semester) who drew Wisser as her championship horse.

Overall a great day, the students were very excited to show off all of the work that they had put in over the semester learning patterns and working with their horse.





Muscle samples taken throughout the study will be compared to see the specific differences that might have occurred over time.

Lab Notes - Dr. Herbst

From The Lab:

The Effects Of Ostarine On Body Composition & The Equine Metabolome



THE TOP 5
TAKE-A-WAYS

#1

Ostarine has been found in post race blood samples in horses. This is believed to be used in racehorses with the intent to enhance performance.

#2

Ostarine has shown promise in increasing muscle mass in humans, but it is unclear if it increases muscle mass in horses.

The Equine Science Center is hoping to uncover the effects of a drug called Ostarine on body composition and the equine metabolome. In addition, they are interested in understanding whether the drug is safe for use in horses.

Ostarine is a selective androgen receptor modulator (SARM), which is a testosterone-like drug that supposedly does not have the negative side-effects of testosterone, but still improves muscle mass.

It was originally created to combat muscle wasting in elderly humans. This drug was deemed safe, but it was ultimately not approved for use in humans. Regardless, it is currently used by horse racers with the intent to cheat.

Metabolomics is the study of metabolites (the end products of break-down processes in the cells). The researchers at the Equine Science Center are expecting to see changes in the metabolite profile in the horses treated with Ostarine.

The horses get a blood-draw, which shows a well rounded picture of how Ostarine is affecting their bodies' metabolomes.

In addition, the horses get a muscle sample taken, which shows a specific picture of how Ostarine affects muscular tissue.

The horses' muscle and fat mass are recorded routinely throughout the study to identify any changes in muscle or fat due to the drug.

Lastly, the horses received physical exams and blood draws for liver function testing to explore potential negative side effects of the drug. The amount of Ostarine in the blood is measured routinely.

The study was conducted over the span of ten weeks. A total of nine horses were used in this study: four in the test group and five in the control group.

The test group received Ostarine dissolved in ethanol so that it could be administered to horses in the form of an injection, and the control group received doses of ethanol only.

The horses were injected with the Ostarine or placebo four times a week for four weeks. The study is now concluded, and statistical analysis is underway. Stay tuned for the results of the study!

#3

Studies in humans found that ostarine might cause liver damage in some individuals, but it is unclear if ostarine causes liver damage in horses.

#4

If ostarine does increase muscle mass in horses, and consequently racing performance, it should be considered a doping agent that endangers the integrity of horse racing.

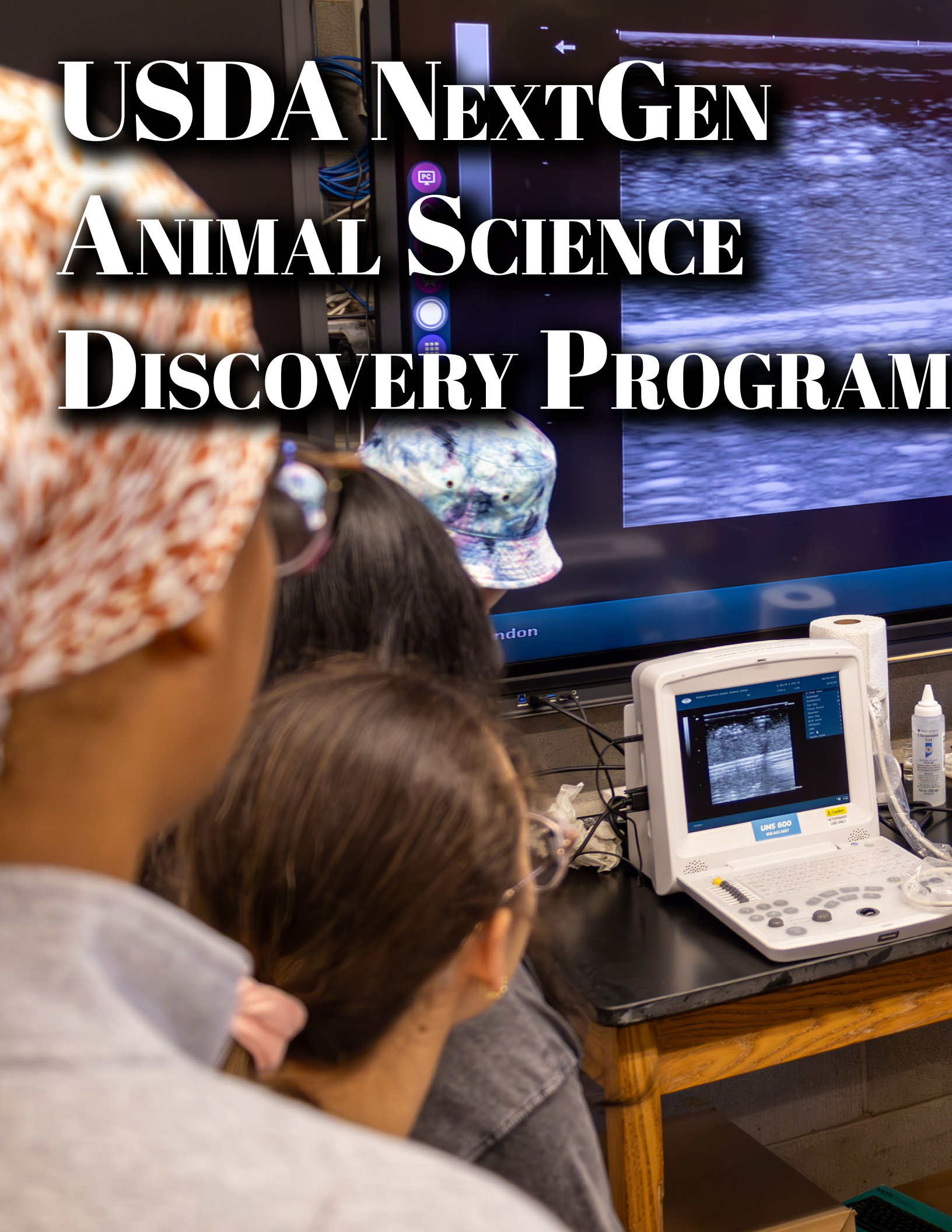
#5

Ostarine could become a therapeutic treatment for horses with low muscle mass, as long as ostarine-treated horses do not compete.

USDA NEXT GEN

ANIMAL SCIENCE

DISCOVERY PROGRAM





B Mode Menu	
ScanAngle	3
ScanDensity	M
Dyn Rng	98
Frame Persist	4
Rejection	1
Gray Map	1
B/W Invert	0
90°Rotate	0
eSRI	1
GAC	4
Needle Guide	

Dr. Alisa Herbst teaches the students taking part in the Animal Science Discovery Program about ultrasound-guided injections, and how the technique can be used by researchers. The students were then able to get hands-on experience ultrasounding the models themselves.



This summer, the inaugural class of the Animal Science Discovery (ANISCId) program came together for a three-week residential experience at Rutgers University on the Cook Campus.

The ANISCId program, which includes summer experiential learning and career development between NYC-area community colleges and Rutgers University, is part of the U.S. Department of Agriculture National Institute of Food and Agriculture (USDA-NIFA) program.

One of the just 33 programs to be selected for funding under their \$262.5 million granting initiative, the ANISCId Program provided hands-on learning opportunities to students interested in

agricultural and animal sciences.

Hosted by the Department of Animal Sciences and Department of Plant Biology at Rutgers, the program is part of a multi-year partnership with LaGuardia Community College (LAGCC), which is located in Queens, NY.

Students from LAGCC participated in topic-related tours, research, and lectures both at Rutgers, as well as through various outside partners.

The Rutgers Equine Science Center provided one of these various sessions, which included a High-Speed Treadmill demo, an overview of the Center's new 3D Scanner, and hands-on experience with the Center's ultrasound equipment.

The Students were shown how the 3D scanner

records the image of the object and then recreates a digital replica of the object that can then be used to look at variables such as muscle, which is what the Equine Science Center will be analyzing as a part of a current research project.

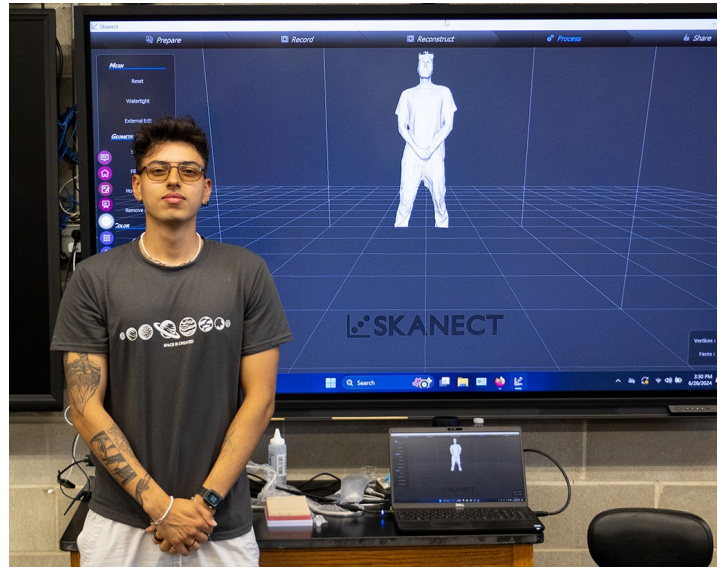
Then a few volunteers were even able to pose for a scan, and the group was then able to look at their 3D rendering.

Next, they were able to practice on lab models using ultrasound equipment to see the different

layers of “skin” and “fat” on the model, as well as see how ultrasounds can be used for practicing injections.

Water was injected into the “veins” of the model, and students were able to see how the vein expanded. They were then shown how to ultrasound the vein using different types of ultrasound probes.

Their time at the Center ended with a group shot outside of the Equine Exercise Physiology Lab with two of the horses.



THE EQUINE SCIENCE CENTER PRESENTS

An Evening of Science & Celebration

Thursday, November 14th, 2024

6:00pm to 9:00pm

Cook Student Center, 59 Biel Road - New Brunswick, NJ 08901



All Stressed Out: What's the Problem?

Keynote By

Dr. Sue McDonnell

From

*The University of Pennsylvania
School of Veterinary Medicine*

Presentations & Awards

- Welcome & Equine Science Center Update
 - Keynote Address
 - Research Updates
- The Spirit of the Horse Award

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RUTGERS UNIVERSITY
Equine Science Center
New Jersey Agricultural Experiment Station

Event Registration Closes:

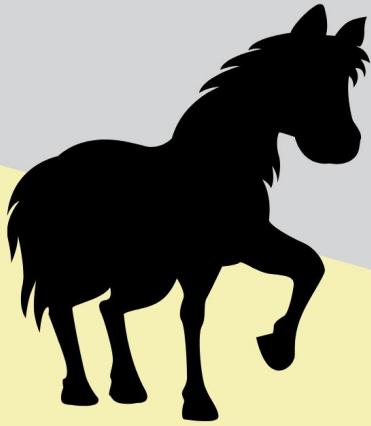
THURSDAY, NOVEMBER 7TH, 2024

To register, please go on-line to:

<https://go.rutgers.edu/Evening2024>

Event fee: \$35 for adults & \$15 for full-time students

“Emergencies, Pasture and Pain... Oh My!”



**Saturday, February 1,
2025
8:00 a.m. – 4:00 p.m.**

**Cook Campus Center,
Multipurpose Rooms
New Brunswick, NJ**

Specific Topics Include..

- “Emergency Preparedness: Many Teams...One Mission.”
- “Small Farm Pasture Management”
- “Evaluating Pain in Horses”
- “Evaluating Pain in Horses while Riding”
- “Basic Saddle Fitting to Reduce Pain in Horses”
- “Health & Management of US Senior Horses”



RUTGERS UNIVERSITY
Equine Science Center
New Jersey Agricultural Experiment Station

RUTGERS ANNUAL HORSE MANAGEMENT SEMINAR

IN PERSON!



Speakers from...

- Rutgers
- Middlesex County Office of Emergency Management
- Penn State
- Oklahoma State University
- Journeyman Saddlery

**...with many vendors
and door prizes!!**

For a full program and registration details:

<https://go.rutgers.edu/2025HMSLiveReg>

The New Jersey Month Of The Horse Opening Ceremonies & Awards



Rutgers Department of Animal Sciences undergraduate student Sarah Paladino poses with Equine Science Center Director Dr. Karyn Malinowski; Joe Atchison, from the New Jersey Department of Agriculture; Rutgers Department of Animal Sciences Teaching Instructor Dr. Taylor Ross; and Senior 4-H Program Coordinator Brittany Rigg after receiving the 2023-2024 Ronald S. Dancer Memorial Scholarship. (Those pictured listed from left to right).



A few of the members of the 2024 Equine Advisory Board posing for a picture before the end of the ceremony.



Representatives from the Rutgers Equine Science Center included Kyle Hartmann, Dr. Karyn Malinowski, Sarah Paladino, and Dr. Taylor Ross.



Ms. Paladino was joined by her parents who helped her celebrate during the scholarship awards ceremony.

The Equine Science Center was happy to join everyone from the Equine Advisory Board for an afternoon of fun culminating with the 2024 NJ EAB Awards Presentations.

Colton Grzankowski received the Ernest Bell Memorial Scholarship from the EAB.


The Center was happy to award both Sarah Paladino and Colton Grzankowski the 2023-2024 Ronald S. Dancer Memorial Scholarship.

This scholarship recognizes students with academic merit; demonstrated interest in equine science; and demonstrated leadership and service to the community, school, and the horse industry.

Dr. Carey Williams was awarded the 2023 Volunteer of the Year Award from the Horse Park of New Jersey for her dedication and commitment to making the Horse Park of New Jersey an equine destination of which all New Jerseyans can be proud.

Summer Refresh: Updated Fact Sheets

R RUTGERS New Jersey Agricultural Experiment Station
COOPERATIVE EXTENSION



Bulletin E296

Agricultural Management Practices for Commercial Equine Operations

Carey Williams, Extension Specialist in Equine Management
Michael Westendorf, Extension Specialist in Animal Sciences

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COOPERATIVE EXTENSION



Fact Sheet FS788

Equine Welfare: A New World for Equine Athletes

Karyn Malinowski, Director, Equine Science Center

There is an increasingly growing concern about catastrophic injuries, especially in Thoroughbred racehorses, that ignites action from animal rights activists and the general public at large. It is every horse owner's, rider's, trainer's, veterinarian's and enthusiast's responsibility to ensure the well-being of the animal that is the backbone of our wonderful industry and to take it upon him/herself to be knowledgeable of how to project the positive side of the equine industry and to know how to interact with animal rights activists.

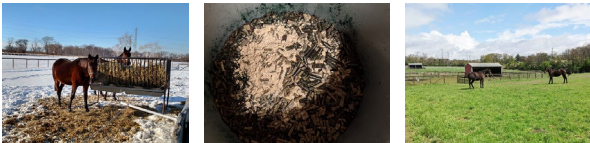
In 2011–2012 Fall/Winter meet at Aqueduct Racetrack, the 2018–2019 meet at Santa Anita Park, and in 2023 on Derby day at Churchill Downs, and during the Summer meet in 2023 At Saratoga Racecourse there were numerous catastrophic injuries that resulted in euthanizing of the horses. Non-racing activities have been impacted as well. Since 2004, 38 riders and 91 horses have died competing cross-country in 3-day eventing.

The agencies responsible for ensuring the well-being of equine athletes in equestrian sport include: the American Association of Equine Practitioners (AAEP), the Federation Equestre Internationale (FEI), the United States Equestrian Federation (USEF), the World Anti-Doping Agency (WADA), and the Association of Racing Commissioners International (ARCI).

AAEP Principles of Equine Welfare include: the responsible use of animals for human purposes, such as companionship, food, fiber, recreation, work, education, exhibitions, and research conducted for the benefit of both humans and animals is consistent with the Veterinarian's Oath.

- Equids must be provided water, food, proper handling, health care and an environment appropriate to their use, with thoughtful consideration for their species-typical biology and behavior.
- Equids should be cared for in ways that minimize fear, pain, stress, and suffering.
- Equids should be provided with protection from injurious heat or cold and harmful adverse weather

R RUTGERS New Jersey Agricultural Experiment Station
COOPERATIVE EXTENSION



Fact Sheet FS038

The Basics of Equine Nutrition

Carey Williams, Extension Specialist in Equine Management

Digestive System Limitations

Horses are **non-ruminant herbivores** and hind-gut fermenters. Their small **stomach** only has a capacity of 2 to 4 gallons for an average-sized 1,000-lb. horse. This limits the amount of feed a horse can take in at one time. Equids have evolved as grazers that spend about 16 to 18 hours a day grazing pasture grasses. The stomach serves to secrete hydrochloric acid (HCl) and pepsin to begin the breakdown of food that enters the stomach. Horses are unable to regurgitate food so if they overeat or eat something poisonous vomiting is not an option.


Horses are also unique in that they do not have a **gall bladder**. This makes high fat diets hard to digest and utilize. Horses can digest up to 20% fat in their diet, but it takes a span of 3 to 4 weeks for them to adjust. Normal horse rations contain only 3 to 4% fat; however, some high fat feed ingredients can be 20–30% for things like rice bran, up to almost 100% for vegetable oils.

An average horse's **small intestine** is about 75 feet long and holds about 20 gallons. Most of the nutrients (protein, soluble carbohydrates, and fat) are digested in the small intestine. Most of the vitamins and minerals are also absorbed here.

Most liquids are passed to the **cecum**, which is 3 to 4 feet long and holds 7 to 8 gallons. Detoxification of toxic substances occurs in the cecum. It also contains bacteria and protozoa that utilize fermentation to digest any structural carbohydrates (i.e., fiber). This microbiome will utilize the energy they consume for reproduction, but the byproducts like volatile fatty acids, and vitamin K, will be used by the horse to supply their energy and other nutrients (for more on the Microbiome, see the [NJAES publication E375](#)).

The large colon, small colon, and rectum make up the **large intestine**. The **large colon** is 10 to 12 feet long and holds 14 to 16 gallons. It consists of four parts: right ventral colon, sternal flexure to left ventral colon, pelvic flexure to left dorsal colon, and diaphragmatic flexure to the right dorsal colon. The sternal and diaphragmatic

R RUTGERS New Jersey Agricultural Experiment Station
COOPERATIVE EXTENSION



Fact Sheet FS716

Stress Management for Equine Athletes

Karyn Malinowski, Director, Equine Science Center

It's hard to imagine that an animal, though it may receive optimal care, can experience psychological stress that ultimately can affect its health. But horses, which can be very "emotional" creatures, are affected by stress, and how each animal responds to a situation differs. Research conducted by Malinowski and her colleagues at the School of Environmental and Biological Sciences (SEBS) and the New Jersey Agricultural Experiment Station is aimed at finding out if horses perceive certain routine training and management practices as "stressful", and how such situations may impact the animal's well-being.

The basis for research studies involving stress management for equine athletes is to reach a goal that all horse owners should strive for: the promotion of management techniques which allow the horse to perform to its maximum genetic potential, under humane conditions. These types of studies are extremely important and should be supported and funded by the horse industry because, in view of animal rights activists' movements, factual, science-based information is needed when it comes to providing information about industry practices.

Stress can be defined as a general term which describes the combination of psychological and biological responses of an animal to novel or threatening circumstances. While the physiological response to stress is a highly complex subject, and certainly is not completely understood, scientists agree that there are two types of stressors. Physical stressors are things such as injury, change in the environment, and exertion. Psychological stressors typically include situations that make the animal anxious or fearful. Uncertainty and fear of the unknown can be categorized as two of the major psychological stressors.

Dr. Malinowski and her students have investigated over the past few decades the horse's physiological response to stress under a variety of conditions by analyzing hormones which are released when a situation is perceived as stressful. The stress syndrome begins with an endocrine response. The production of stress hormones (catecholamines and glucocorticoids) eventually leads to changes in cardiovascular function, energy-producing mechanisms, digestion, immunity, and reproduction.

For the full list of Fact Sheets, please visit: <https://go.rutgers.edu/EquineFactSheets>



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Equine Science Center
New Jersey Agricultural Experiment Station

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Lord Nelson's Blog



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*I'm Lord Nelson, an American Quarter Horse.
Sign up for my blog to learn about equine
science and hear what's new at the ESC!*



Equine Science Center Funds Research Into Equine Muscle Atrophy Scoring System (MASS) & Selective Androgen Receptor Modulators (SARMs)

The loss of muscle mass (muscle atrophy) can significantly impair a horse's performance and welfare and represents an important concern for equine health.

Recognizing this need within our equine community as more horses are living longer, being given second and even third careers, the care of the older horse has become an even more important area of research to

look into.

Acknowledging this, Dr. Alisa Herbst has been funded to investigate the validation of an equine Muscle Atrophy Scoring System (MASS) as a way to detect and monitor muscle atrophy in horses; as well as the use of selective androgen receptor modulators (SARMs) and if this may serve as an effective treatment to mitigate muscle atrophy in senior horses.



The baseline testing has just started this week and will provide numerous George H. Cook Research projects for undergraduate students. As a part of the George H. Cook Research Project program, these undergraduate students are required to conduct hand-

on research and data analysis, which culminates in a research paper and presentation upon completion.

In the past the Equine Science Center has gone on to take these students to international conferences to present this work.





RUTGERS UNIVERSITY
Equine Science Center
 New Jersey Agricultural Experiment Station

Pasture, Nutrition & Pain... Oh My!

BACK BY POPULAR DEMAND...

RUTGERS VIRTUAL HORSE MANAGEMENT SEMINAR



VIRTUAL Edition 2025
Tuesday Evenings in February
11th , 18th , 25th
6:30 – 8:30 pm each night

Specific Topics Include..

- “Small Farm Pasture Management”
- “Plants Toxic to Horses in the North and South US”
- “Basic Horse Nutrition”
- “Specific Nutritional Considerations for Equids with Endocrine Disease”
- “Health & Management of US Senior Horses”
- “Evaluating Pain in your Horse while Riding”

- **Farm Management – February 11th, 2025**
- **Nutrition – February 18th, 2025**
- **Horse Health and Welfare – February 25th, 2025**

For a full program and registration details:

<https://go.rutgers.edu/2025VirtualHMSReg>



NEW JERSEY
DEPARTMENT OF AGRICULTURE



RUTGERS UNIVERSITY
New Jersey Agricultural
Experiment Station

2025 NJ Junior Animal Science Symposium

**Location: Round Barn
@ George H. Cook Campus
Rutgers University**

Location: Intersection
of College Farm Road
and Sheepfold Lane,
North Brunswick
Township, NJ.

SAVE THE DATE
March 29th, 2025



Saturday
March 29th, 2025
8:30 am - 3:00 pm

For youth and adults
Rain or shine!

Hands-on workshops in the following tracks

- **Equine**
- **Swine**
- **Small Ruminant**
(Sheep & Goat)
- **Large Ruminant**
(Dairy and Beef Cattle)
- **Herpetology**
- **Poultry**
- **Beekeeping**
- **Rabbit**
- **Cavy (Guinea Pig)**
- **Animal Science Video Contest**

Registration Opens
in February of 2025.

Questions? Contact:

Amelia.Minervini@rutgers.edu

**Sponsored by the New Jersey Department of
Agriculture Junior Breeder Program, in cooperation
with Rutgers Cooperative Extension faculty and staff.**

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