RUTGERS UNIVERSITY

EQUINE SCIENCE QUARTERLY



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2019 Horse Management Seminar Brings Together Equine Reproduction Experts For Full-Day Event

his year's topic for the Horse Management Seminar is "Equine Reproduction: The Feeding and Care of the Mare/Foal, Stallion, and Growing Horse."

Hosted by the Rutgers Equine Science Center and Rutgers Cooperative Extension, the seminar will take place from 8:30 am – 3:45 pm on Sunday, February 10, 2019, and will feature presentations by several experts in the equine industry.

The program has a long history with the first seminar taking place in 1979. Since its inception, the program has continued to grow and evolve to meet the needs of the industry, with a strong focus on attendee feedback that is instrumental in shaping the program and guiding decisions regarding future seminar themes.

"This year we selected a topic that we have not covered during any of the previous Horse Management Seminars. Even if you don't currently breed horses, the presentations will have lots of information for everyone!" says Carey Williams, Extension Equine Specialist and Associate Director of Extension for the Equine Science Center.

"Our goal for this workshop is to

bring in the leading experts in each of these topic areas. These include: broodmare and growing horse nutrition, care of the stallion, and new reproductive advances." Also Highlighted will be a presentation of current and future research from Rutgers Endocrinology and Animal Biosciences graduate students.

This year's program features Dr. Ed Squires, Director of Advancement and Industry Relations and Executive Director of the Gluck Equine Research Foundation.

Squires is widely considered to be a pioneer in the field of equine reproductive techniques.

During his career, he has contributed to our understanding of various aspects of equine reproduction in both the mare and stallion. These contributions have been instrumental in shaping the advancement of equine reproductive techniques.

He will be the first speaker at the seminar, presenting "Stallion Care" and "Recent Advances in Equine Reproduction".

The morning session will also feature Dr. Dan Keenan from Foundation Equine, a veterinarian practice

From The Clubhouse



Wishing all of our friends of the Rutgers

Equine Science Center a happy, healthy, and prosperous 2019.

Dear Friends,

I hope you all took some time during the holidays to enjoy quality time with family, friends, and your horses.

Center faculty, students, and staff have been busy hosting and attending many events around the state. On November 3, we hosted our first wet lab at the Equine Exercise Physiology Lab for the New Jersey Association of Equine Practitioners. Horses from the Rutgers University Teaching Herd were used, and everyone in attendance was extremely pleased with the quality of the horses and the facilities, here on campus. A huge thanks to our students who spent the day volunteering to help! For the full story, see Page 8.

On November 8 the Center held its annual "Evening of Science and Celebration". This event, sponsored by Mid-Atlantic Equine Medical Center always brings an eclectic group of attendees. The Rutgers University Board for Equine Advancement was well represented and we had a VERY special visitor — Governor Richard Codey. For pictures from the event and to see our 2019 award winners, see the story on Page 6.

The Center also published the results of a survey conducted by the New Jersey Association

of Equine Practitioners this past fall which looked at the impact of changes in the horseracing segment of the horse industry, and how this has effected equine veterinary practices. To see the results, please visit:

http://bit.ly/2018EquineVetSurvey.

On November 12 -13, the Center, along with RUBEA co-chairs, Dr. Amy Butewicz and Warren Zimmerman, helped the New Jersey Farm Bureau celebrate its 100th anniversary by joining in the festivities at its annual convention. The Equine Science Center truly values the partnership and support of the NJFB, and looks forward to another great year of friendship!

The Center's annual stakeholder meeting took place on December 19 in conjunction with the NJDA's Equine Advisory Board monthly meeting. The stakeholder meeting was used to share highlights of the Center's work, and to hear challenges impacting the lives of horse and horse farm owners. Working with it's constituents, the Center aims to find possible solutions to these issues, and reports back each year on the progress that is made. Highlights of the Center's work can be found in PDF format at:

http://bit.ly/2017-2018ResearchUpdates.

Finally, I hope to see you all at the 2019 Horse Management Seminar, scheduled for Sunday, February 10! Feeding and the Care of Mares, Foals, Stallions, and Growing Horses is the overarching theme of conference. Carey Williams has assembled presenters who are recognized as the leading experts in the field to offer perspectives and personal insight, as well as special guest Dr. Ed Squires from the University of Kentucky's Gluck Equine Research Center. See Dr. Squires' thoughts on recent advances in equine reproduction in the "From the Lab" section on Page 10.

For more information on the Horse Management Seminar, and to learn how to register, take a look at the main story on **Page 1**.

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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UMH has been in business since 1968, operating as a public company since 1985. The company owns a portfolio of over 90 manufactured home communities, housing approximately 15,700 home sites.

In addition, they own over 810 acres of land for the development of new sites. It is our mission as a company to provide the best quality affordable home for the hard working residents of Pennsylvania.

UMH communities are perfect for residents of all ages, let us help up you find your dream home today.

For more information about UMH Properties, Inc., please visit: www.umh.com



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

Horse Management Seminar

Sunday, February 10, 2019

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

esc@njaes.rutgers.edu

Junior Breeders Symposium

Saturday, March 30, 2019

Cook Farm Rutgers, The State University of New Jersey New Brunswick, NJ 08901

carey.williams@rutgers.edu

Ag Field Day Part of Rutgers Day

Saturday, April 27, 2019

Red Barn - Cook Farm Rutgers, The State University of New Jersey New Brunswick, NJ 08901

esc@njaes.rutgers.edu

Equine Science Center's Summer Showcase

Wednesday, July 10, 2019

Red Barn - Cook Farm Rutgers, The State University of New Jersey New Brunswick, NJ 08901

esc@njaes.rutgers.edu



2019 Horse Management Seminar Brings Together Equine Reproduction Experts For Full-Day Event Continued from Pg. 1

specializing in equine reproduction.

Keenan's pretension will focus on the "Care of the Mare and Foal Pre and Post Birth."

The afternoon session will include "Feeding the Pregnant/Lactating Mare" by Dr. Amy Burk, leader of the equine breeding program at the University of Maryland, and "GI Development and Nutrition of the Growing Horse" by Dr. Paul Siciliano, from North Carolina State University.

The seminar will wrap up with a panel discussion featuring the three main speakers, and will be moderated by Williams. The panel discussion will be an opportunity for attendees to have questions answered and is often the highlight of the program.

Immediately following the panel, an update on

current and future research at the Center will be given by Jennifer Weinart, current Ph.D. student.

In addition to the educational presentations, the Horse Management Seminar will feature informational displays from sponsors, networking opportunities with equine industry companies and area organizations, and ample time for one-on-one discussions with the seminar presenters and invited guests.

Information for the 2019 Horse Management Seminar, registration, and a brochure can be found at http://bit.ly/2019HMS.

Register quickly as space is limited! Early bird registration ends on January 28, 2019, so be sure to register today!

Rutgers' Annual Horse Management Seminar

February 10, 2019

Feeding and Care of Mare/Foal,Stallion, and Growing Horse

Presented by

experts from around the region

lopics:

There's more:

Visit with industry vendors

Win lots of door prizes

Network with experts

Rutgers Equine Research Update



GI Developmant and Feeding of the Growing Horse

Recent Advances in Equine Reproduction

Feeding the Pregnant/Lactating Mare

For the full schedule of the day and to register go to:

http://bit.ly/2019HMS

Rutgers Cook Campus Center 8:30 AM - 4:00 PM





The 2018 Evening of Science & Celebration



The Rutgers Equine Science Center hosted the 28th annual "Evening of Science and Celebration" on November 8, 2018.

Following dinner, the keynote address was given by Burt Staniar, Ph.D., Associate Professor of Equine Science at Penn State University.

He presented an overview of digestion in the equine gastrointestinal tract with an emphasis on the impact diet composition and particle size can have on equine health.

The presentation included a demonstration on how to determine particle size of different feedstuffs or rations. The highlight of the address was provided by Dr. Staniar's use of blenders to give a visual representation of what happens to different rations in the horse's digestive tract.

Dylan Klein, Ph.D., provided an update on his study entitled "Fit as a Horse: Impact of Training and Detraining on Body Composition, Aerobic Capacity, and Athletic Capacity in Standardbred Horses." Results indicate exercise increases fitness in both mares and geldings even without accompanying changes in body composition.

The evening also included an update from Jennifer Weinert, Ph.D. student, on her study

called "The Grass is Greener: Integrated Cool- and Warm-Season Rotational Grazing Systems."

Preliminary results show diurnal variation in non-structural carbohydrate content of warmseason grasses. The pilot study also indicated that the EquiWatch system can be used to determine total grazing time and total number of bites and chews in grazing horses.

Several members of the New Jersey 4-H Roundup team who just returned from national competition were honored. Brittany Smith, of Warren County presented her award-winning presentation entitled "The Cold Never Bothered Me Anyway" about horse racing on ice in Switzerland.

New Jersey 4-H'ers raised money for the Equine Science Center at the State 4-H Horse Show in August and the check was presented during the Evening of Science and Celebration.

The evening concluded with the presentation of the "Spirit of the Horse" and "Gold Medal Horse Farm" awards. Kennis "Buttons" Fairfax received the "Spirit of the Horse" award from Governor Richard J. Codey, and the "Gold Medal Horse Farm" award went to Mortonhouse Farm owned by John Crater.















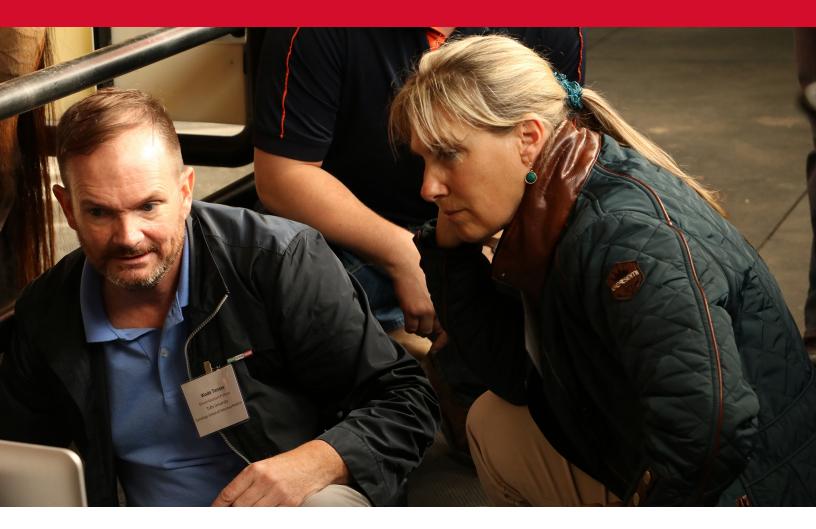






To see more of the pictures from the event, please go to: http://bit.ly/2018EveningPictures

Rutgers Equine Science Center Hosts The New Jersey Association of Equine Practitioners For Wet Labs



he Equine Science Center hosted the New Jersey Association of Equine Practitioners at the Equine Exercise Physiology Lab on November 3, 2018 for a wet lab sponsored by Zoetis and Universal Imaging, LLC.

The event provided continuing education in ultrasound techniques for veterinarians and allowed student volunteers to gain knowledge as they assisted with the labs.

The wet lab provided practicing veterinarians the opportunity to refine their ultrasonographic skills alongside some of the leading veterinary imaging experts in the United States. The use of the Equine Science Center's fully articulated skeleton "R.U. Wishbone" provided an added benefit to the lecturers and attendees, who were able to see the actual skeletal component that aligned with what was seen in the ultrasound image.

Region focuses included Stifle/Neck/Pastern in the morning session of the wet lab and Back/Sacroiliac in the afternoon. Instructors for the wet labs included Katherine Chope, VMD, DACVSMR and Wade Tenney, DVM.

In 2002, Dr. Chope joined the faculty as Clinical Assistant Professor at Tufts Cummings School

of Veterinary Medicine. Dr. Chope has lectured extensively and given equine ultrasound wet labs at numerous regional, national and international conferences.

Dr. Tenney currently serves as Clinical Assistant Professor at Tufts Cummings School of Veterinary Medicine, and worked in three private referral practices prior to joining Tufts in 2013.





He has also spent considerable time working at the HITS Horse Show in Thermal, CA, and the Winter Equestrian Festival in Wellington, FL. Dr. Tenney spends some of his off clinics time serving as an FEI Delegate at events across the US.

Attendees were pleased with the event and expressed interest in holding another continuing education event at the Equine Science Center.







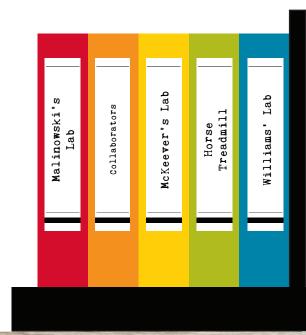






From The Lab:

Assisted Reproduction in Mares & Stallions with Dr. Ed Squires



TOP 5
TAKEAWAYS FOR
EQUINE ASSISTED
REPRODUCTION

#1

There are several billion sperm in the storage area of a stallion's testicles that can be harvested and frozen within 24 hours after the stallion dies.

#2

Semen quality can be improved greatly by centrifuging sperm through a filter to remove the dead and damaged sperm.

n most breeds reproductive technologies have been readily accepted. These techniques have expanded the production from mares and increased the efficiencies of reproduction in both mares and stallions. Some of the more recent technologies are discussed below.

Embryo transfers have been done in horses since the late 1970's. Embryos can now be collected in one area of the country and cooled and shipped to centralized embryo recipient facilities all over the USA.

The embryo, in the cooled state, will stay alive for 24 hours. To store embryos for an extended period of time, an ultra- rapid freezing method called vitrification has been developed. This allows embryos to be collected in late summer and fall and transferred into recipients early the following year. This is a technique quite popular with clients who own racehorses.

There is one problem, however, the equine embryo only freezes well if it is a 6-6.5 day old embryo, less than 0.3mm in size. Larger embryos can be frozen by eliminating 90 % of the fluid in the embryo by micromanipulation.

One the biggest changes in assisted reproduction is the routine production of horse embryos in vitro (test tube babies). There are

now several veterinary centers that can perform this technique called intracytoplasmic sperm injection (ICSI).

Eggs are harvested from mares by an ultrasound guided approach, cultured in an incubator, injected with a sperm, cultured again until a day 7-8 embryo is formed and then transferred to a recipient. With this technique embryos can be produced year round and can be from sub fertile mares and stallions.

The embryo can also be biopsied for cells or fluid and the tissue or fluid used to determine the sex of the embryo or used for detection of genetic diseases or coat color.

On the stallion side, passing sperm though a column filled with silane (Equi Pure) will result in collection of a purified sample of superior quality. Sperm can also be passed through a flow cytometer for separation of X and Y -bearing chromosomes, allowing one to breed with sexed semen and pre-select the sex of the foal.

Stallions that prematurely die due to injury or post-surgery can have their testicles removed and the sperm in the storage area (epididymus) can be recovered and frozen, thus, salvaging that genetic material.

#3

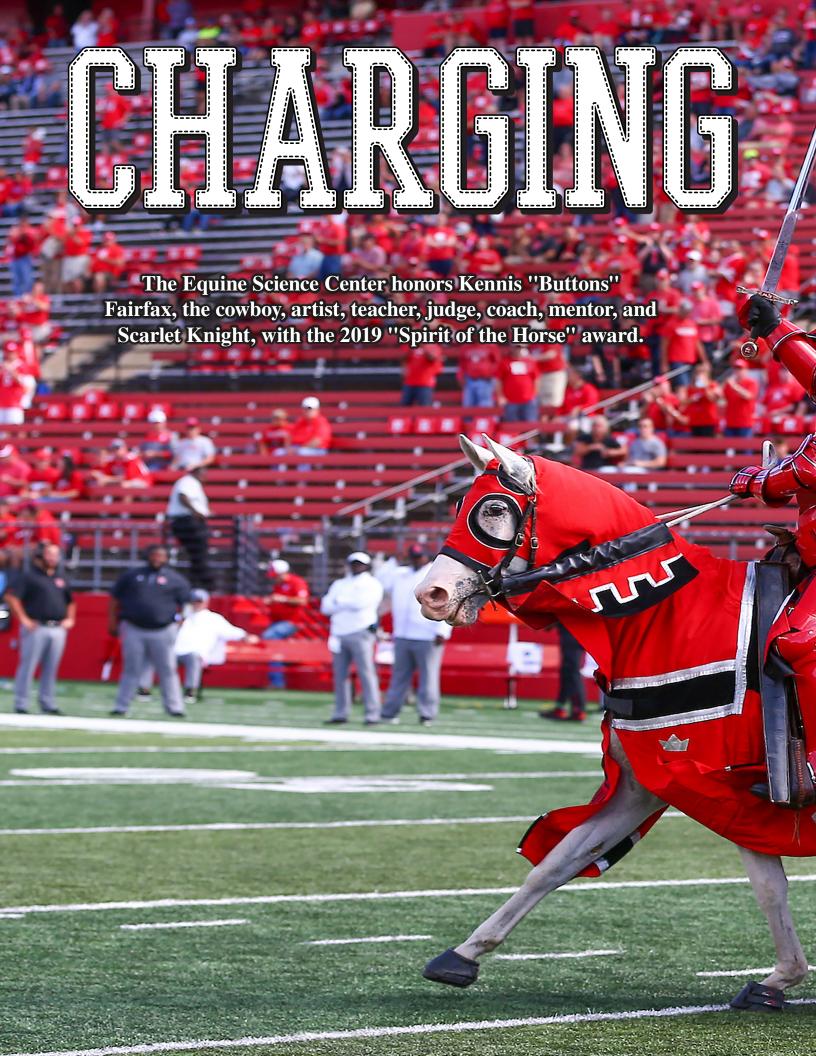
Eggs from mares can be collected by ultrasound guided techniques every few weeks throughout the year.

#4

Embryos can be biopsied without harm and that material can be used for determining sex, the potential of genetic diseases, and the potential coat color of the foal.

#5

Sperm injection is now a routine method to produce foals from problem mares and stallions.







"To succeed, your desire to be successful should be greater than your fear of failure."

- Kennis "Buttons" Fairfax

From a young age Kennis "Buttons" Fairfax developed a strong connection to his family, and what it really meant to be a contributing member.

Growing up, it was Fairfax's grandmother with who he had a strong connection. She was instrumental in helping his mother raise him and his sisters, and when his father passed it was his grandmother with whom he ended up living.

When she moved to New Jersey to live with Fairfax's uncle, it was only natural that he followed. Each summer though, he would travel from New Jersey with his grandmother to help relatives in Georgia and Oklahoma.

This tradition started when he was around five years old, and would serve as a foundation for his personal views. "She was the bond that I would say held me together; teaching me values, morals, and respect," said Fairfax, "I will always appreciate her for assisting my mother with raising me."

It was also during these trips that Fairfax developed a deep love for horses (as well as other four-legged friends).

"My grandmother use to tell the story of how I always loved horses, and during our trips I would swing from the mules' tails in the fields," said Fairfax, "they would never kick ... maybe they were just as infatuated with me as I was them?"

His family owned plots of land in both Georgia

and Oklahoma, and his job during these summer trips included caring for the horses and mules that were used for farming on the family's many acres.

During the school year, back in New Jersey, Fairfax also developed a passion for the arts, as well as sports.

By the time Fairfax was graduating from high school in Linden, NJ, he had received a scholarship to attend the Art Institute of Pittsburgh, where he would study illustration and visual communication.

Because this was only a two-year program, he explored other options and during a visit to a friend at Delaware State College (now Delaware State University) he started to think about what his next steps would be.

After speaking with professors at Delaware State College, as well as the track and football coaches, he decided to enroll in the pre-veterinary medicine program.

He would still take art classes, and get involved with the sports teams, but this unique set-up would allow him to get credit for taking classes (somewhat nearby) at the well-known New Bolton Center at the University of Pennsylvania's School of Veterinary Medicine.

At New Bolton he would be able to satiate his need to be around horses, while learning from professors and doctors at an internationally renowned large animal hospital.

While he loved what he was doing academically, he also felt the calling of his love for playing sports. Determined to give it a shot while he was still able to, and at the suggestion of a few people who had seen him play, he tried out for the Seattle Seahawks in 1978.

"Sports have always been a part of me and when you have the opportunity to do something you enjoy, you are going to do well," said Fairfax, "someone must have [seen] that I might be able to fill a need for their team."

This pursuit would be cut short, as he ended up breaking both of his legs before he was able to play professionally. Returning to college, Fairfax continued his studies, and graduated in 1982.

Moving back to New Jersey, he applied for a job with the Essex County Vocational Outreach Program where he worked briefly before cutbacks terminated the position.

Still determined to teach, he applied to a school

in the Newark school system, one of the systems that the vocational program had serviced, and was hired. Arts High School in Newark, the nation's first public high school for the arts, allowed Fairfax to connect to his artistic side, and help others fall in love with visual arts and music.

Fairfax thinks back upon time in his life, "I think my purpose was to teach and educate because whenever I had the chance I was instructing and attempting to teach. So, given the opportunity to give back, I felt that teaching was my way of giving back and I believe my purpose was to be in Newark, where I have made a difference in many a lives."

These lives included numerous students who have gone through the door to his classroom, the students he has coached on the school basketball team, and the students he mentors (including some who haven't been a student or player of his for years).

Once such mentee has been in the news over



Latin Band Advisor, Kennis "Buttons" Fairfax (in the far back), pictured with part of the PIX11 Morning Show team. This picture was posted to the Newark Board of Education's twitter, and was taken during an interview of "Arts HS seniors Shamar [McPherson] and Jalin Shiver on their outstanding musical performance. Joining them [is] Band Director Mr. Liggins."



Kennis "Buttons" Fairfax at a recent New Jersey 4-H Horse Judging Contest, in his signature boots, coat, and cowboy hat.

Photo Credit: Lillian Shupe, Editor, TAPintohorses.net

the last few months for his role in Black Panther and Creed II.

Critically-acclaimed actor Michael B. Jordan, who was a former basketball player for Fairfax during his time at Arts High School, still keeps in touch and had even invited Fairfax to a premier of Creed II.

Fairfax, staying true to his relaxed demeanor, speaks of Jordan as he would any of his other mentees, with pride in what they have accomplished. "He's a down to earth guy, and still calls every now and then to check in with me."

Jordan, much like Fairfax, has strong ties to Newark and as a part of the Creed II tour made sure to make Newark, NJ one of the locations for the premier of his movie.

While premier locations usually include large cities such as New York, Brazil, South Africa, and

London, Jordan's push to have a premier in Newark exemplifies the values that Fairfax instills into his students, players, and mentees; a deep connection to giving back to the community that they are from.

Outside of the basketball court, Fairfax found another form of coaching. Throughout this time, whether at college or as a high school teacher, Fairfax would always find time to ride.

His youthful love of interacting with horses was a constant, and so he decided to pass on the knowledge that he had gained over the years working with them.

"In every experience in life you learn how to do something, or how not to do something. I have to thank the many people who helped me [along the way] in this learning process, and who believed in the love and desire I had to learn more about horses," says Fairfax. "Not just to ride them, but how they function in relationship to us, how can we understand [them better] to get them to be the best they can, to perform to the best to their abilities."

During the beginning of his coaching and judging career is where he was originally given the nickname "Buttons."

At one of these events, Fairfax had decided to wear a shell cap that was covered in buttons. An attendee at the event did not remember his name, and needed to call out to him for one reason or another. So the attendee called out "Hey you... "Buttons," which while getting Fairfax's attention at the event, also came with the result of a nickname which has stuck with him forever.

Since then, Fairfax has traded in this cap for a cowboy hat, and became known internationally as a clinician and judge in the Western horse world.

"Each day I wake up knowing that my purpose in life has not been fulfilled, and that there are more lives I can touch and encourage to reach their full potential," says Fairfax, "my love for horses has helped me through many adventures and journeys (we will call them) in my life."

Fairfax jokes that he hates people but loves horses, so trying to bridge the gaps between people communicating with their horses is something that he enjoys, both for the betterment of the person and the horse.

"When working with horses that you have successfully communicated with..., there is a sense of accomplishment within them as well."

One such connection was formed through an interesting idea about the Rutgers Football Team around 25 years ago.

Fairfax had been invited to Rutgers to judge the Horse Show at "Ag Field Day" (now a part of the University wide "Rutgers Day") and was approached by a man who thought that the Rutgers Football Team needed a little something to stand out during the games.

This man, Jorge Hernandez, would work with Fairfax to create the image of the Scarlet Knight at



The Scarlet Knight, pictured above, has had a few different iterations since joining the Rutgers Football Team. Kennis "Buttons" Fairfax (pictured above is one of the Knights in rotation during football games, and even if he isn't riding the horse during the game, Fairfax can be found as part of the team that gets the horse ready, only having missed one game in the last 25 years.

football games; one of a battle-ready knight riding into the stadium on horseback to conquer.

"His first reaction was 'let's get this done," says Hernandez, "he was all in."

While Hernandez took the lead, it was the "Alum-Nuts" as they call themselves; a group of Rutgers Alumni, Cook College Alumni, Livingston alumni, and even a few Rutgers staff members; that came together to make this happen.

Hernandez also wanted to be sure that this was done safely, and that an experienced rider would be donning the Knight's armor. After some convincing, it was decided that Fairfax would be the perfect candidate to take the field.



Fairfax pictured above (from right to left) with his daughter Tatiana, and Rutgers Equine Science Center Staff and Board Members Dr. Karyn Malinowski, Dr. Amy Butewicz, Dr. Carey Williams, and Mr. Warren Zimmerman, after receiving the 2019 "Spirit of the Horse" award.

For the next 25 years, this image became the embodiment of a Rutgers Football Game.

"I would have never done this without him," says Hernandez, who owns the current Scarlet Knight's horse and gets him ready for each game-day. "Without his knowledge of working with horses, and his dedication, this wouldn't be possible."

During his time as the Knight, Fairfax, with the help of Hernandez, has used a few different horses, but none are as memorable as the Equine Science Center's very own Lord Nelson.

"One of my favorite Lord Nelson stories wasn't the 15-yard penalty, but was when we were filming a TV spot and were standing about 3 feet from the cannon on the hill," says Fairfax. "The cannon went off and Nelson just stood there and looked at the smoke rings. Never moved, just looked as the smoke rings vanished then looked at the cannon to see if it was going to do it again."

Recently, Fairfax was invited back to Rutgers

University to receive the 2019 "Spirit of the Horse" award from the Equine Science Center.

This award is given to those who have made a positive impact on the equine community, helped others to get involved, and whose lives have been changed because of the profound connection between horses and humans.

Awarded at the Center's "Evening of Science & Celebration" in November, Fairfax was presented this honor by Governor Richard J. Codey.

Talking about giving back to the equine community, his goal has always been "Helping people to enjoy equine events and activities by giving them a better understanding, whether that is through judging, seminars and clinics, of horses," says Fairfax. "Realizing that there are so many other things kids and people can and are doing with their time, we in the industry must find ways to bring folks in. We have to make it interesting, understandable, and a great family activity."



