

# RUTGERS UNIVERSITY

# EQUINE SCIENCE QUARTERLY



From Our Stable To Yours  
Spring 2016

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## Celebrating 15 Years of Excellence:

Join us as we prepare for our 15 year anniversary by taking a look back at some of the most memorable moments at the Equine Science Center

**A**s we get ready for our 15 year anniversary, we thought that taking a look back at the history of the Center would be a great start to the celebration.

From June 1, 2016 to May 31, 2017 the Center will be hosting events, programs, and activities

to celebrate 15 years at Rutgers University.

Take a stroll down memory lane, and learn about what the center has done over the last 15 years to achieve our goal of “Better Horse Care through Research and Education.”

# From The Clubhouse



## Looking back on “15 Years of Excellence” at the the Equine Science Center

Dear Friends,

Beginning in June, during the “Month of the Horse”, the Rutgers Equine Science Center will begin the year-long celebration of its 15th Anniversary. I hope to see you at upcoming events as we share our successes since the Center’s inception in 2001. From the cover story of this newsletter you can see that Kyle Hartmann has designed a time line of Center accomplishments. We will be having a time line of our research and outreach highlights in upcoming issues of the newsletter as well. A few surprises are in store coming up from now until the end of June, 2017.

I have been busy this semester doing more teaching than usual and to a wide variety of audiences. Seems that people around the state have become very interested in the Equine Science Center, its faculty and students, and its work. **I hosted two more Douglass Residential College externs during spring break.** Yvette Israel and Arianna Quinones participated in a New Jersey Equine Advisory Board meeting, research at both the Ryders Lane Environmental BMP Demonstration farm with Carey Williams and at the Equine Exercise Physiology Lab with Ken McKeever and myself. They even got to drive Hugme Christi at Gale’s Way Farm! **I lectured at the Purnell School in the intensive “The Ethics of**

**Animal Rights” class** and in the **SAS Interdisciplinary Honors Seminar of Professor Ginny Yans, “Talking with Animals”** along with Ken and Carey.

Rutgers hosted the first New Jersey Youth Institute of the World Food Prize on March 4 and a **visit to the Equine Exercise Physiology Lab** was one of three lab experiences offered to the group of young people interested in pursuing STEM in career paths relating to agriculture and global food security. The annual Horse Management Seminar, held on Valentine’s Day was one of the most successful in recent years. Chaired by Carey Williams, the theme was “Why does my horse do that?” Great fun was had by all as we learned a good deal about equine behavior/misbehavior!

Welcome back to Nettie Liburt who is helping us out on a part-time basis as we carry out our celebratory plans and increase our outreach to alumni. Welcome to Melissa McKillip the new Vice Dean for Advancement for the School of Environmental and Biological Sciences who has already met with us and is ready to assist with our fundraising efforts!

**I also was credited in the successful recruitment of Rutgers’ top recruit for the women’s volleyball team. Kamila Cieslak from Tennessee said “yes” to RU after a visit with me in November of last year.** Kamila is interested in horses and was quoted in a Knoxville newspaper as saying, “I am coming to Rutgers because they have the best equine program and that was a big point.” Looking forward to seeing you play Kamila!

On a personal level, I am back in the sulky with a new horse Imperial Storm. Hopefully Stormy and I can team up this summer in the C.K.G. Billings series. It feels great to be driving again!

Can’t wait to see all of you at **Ag Field Day on Rutgers Day.** We’ll be at the Red Barn on College Farm Road from 10:00-4:00 sharing stories about the Center’s 15 years. Also **Lord Stirling Stable is hosting a fundraiser hunter pace** for the Center on Sunday, May 22 in Basking Ridge. Registration is the day of the pace. Hope to see you all there!

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](http://www.njfb.org).



UMH Properties, Inc., is a real estate investment trust that owns and operates manufactured home communities in seven states throughout the north-east.

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

In addition, owning 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](http://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](http://www.nj.gov/agriculture)



Merial recognizes that diseases pose a significant threat to the health and well-being of horses, and that's why Merial is at the forefront of supporting horse owners and veterinarians in their efforts to keep horses healthy.

In addition to providing a wide array of vaccines and pharmaceutical products for horses, Merial engages veterinarians and horse owners in educational programs and online tools to build a greater awareness of diseases and the importance of prevention.

These resources, along with industry-leading products enable us to help veterinarians and horse owners keep horses healthy.

## UPCOMING 2016 EVENTS

### Rutgers Day 2016: Ag. Field Day

Saturday, April 30, 2016

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

[ESC@aesop.rutgers.edu](mailto:ESC@aesop.rutgers.edu)

### Rutgers Equine Science Center 15th Anniversary Benefit Hunter Pace

Sunday, May 22, 2016

Lord Stirling Stable  
256 S. Maple Avenue  
Basking Ridge, NJ 07920

[ESC@aesop.rutgers.edu](mailto:ESC@aesop.rutgers.edu)

### Fair Winds Farm Open House

Sunday, June 26, 2016

74 Red Valley Road  
Cream Ridge, New Jersey 08514

[fairwindsfarm31@verizon.net](mailto:fairwindsfarm31@verizon.net)

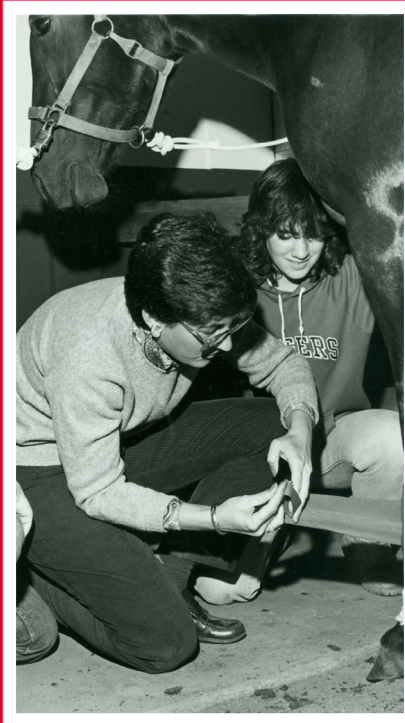
### Equine Science Center's Summer Showcase

Wednesday, July 13, 2016

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

[ESC@aesop.rutgers.edu](mailto:ESC@aesop.rutgers.edu)

For more events, visit our website @ [esc.rutgers.edu](http://esc.rutgers.edu)



## Events throughout the Years:

From the inception of the Equine Science Center, to large-scale events, the Equine Science Center has always focused on “Better Horse Care through Research and Education”.

### *2001 - The Equine Science Center*

Rutgers University Board of Governors names the Equine Science Center as an official Center at Rutgers University.

### *2003 - Horses: 2003*

Our first time hosting the multi-state partnership in educational programming for horse owners. This two-day educational conference on a variety of equine-related topics was a huge success!

### *2003 - The Horse Industry Summit*

The first of its kind in NJ, the Horse Industry Summit was held at Rutgers, resulting in the identification of key issues impacting the New Jersey equine industry.

### *2009 - Horses: 2009*

Horses: 2009 was held, and was the biggest educational and financial success for this program to date. Horses 2009 drew participants from several states and speakers from across the horse industry.

### *2011 - The Equine Science Center Gala*

Gala event at the new Metlife Stadium, in celebration of the Center’s 10th anniversary. Brian Cashman, GM of the New York Yankees, provided insight into the life of the Yankees at a fireside chat.

### *2014 - Riding My Way Back*

Celebrating Veterans Day, a documentary about the impact of equine-assisted therapy on veterans was screened at The State Theatre.

### *2015 - Equine Issues Symposium*

The first of its kind, a symposium on legal, business, and insurance issues within the equine industry was hosted at the Palace at Somerset Park.



Lab Demonstration with Emily Lamprecht

Lab Notes - Looking Back

# From The Lab:

## 15 YEARS OF SCIENCE THAT IMPROVES THE HEALTH AND WELL-BEING OF OUR HORSES



## Laying the Groundwork for Future Studies:

### Research Findings

#### 1997-1998

Original research in the aging horse by Malinowski and students began during this time. Some highlights of the research findings include: equine somatotropin (eST, a.k.a. growth hormone) increased muscle tone and nutrient retention in aged horses, and equine somatotropin was found to have no effect on markers of exercise performance.

#### 1997

Older mares had a lower exercise capacity compared to young mares.

#### 1999

Older horses had reduced immune function.

#### 1999

Older horses had an age-altered endocrine response to exercise.

#### 2000

Human assay kits to measure erythropoietin were validated for equine use, making sample analysis much easier to accomplish.

# Research Highlights 2001 - 2016

2001

Clenbuterol was discovered to be a significant repartitioning agent in horses, causing reduced body fat and increased fat free mass (i.e. muscle) at therapeutic doses.

2005

Orange peel & ginger extracts reduced cardiovascular recovery time in horses after acute, intense exercise.

2005

Extracts of black tea, orange peel, cranberry and ginger appear to modulate the responses of inflammatory cytokines to exercise in horses.

2002

Exercise training can partially reverse age-related declines in maximal heart rate, maximal oxygen uptake and treadmill velocities producing maximal oxygen uptake.

2006

Old mares had a reduced cortisol and immune response to exercise. This finding may have implications for energy use during, and in recovery from, exercise.

2006

KAATSU training can induce muscle hypertrophy in horses. KAATSU training may provide significant therapeutic/rehabilitative value in horses, as has been shown in man.

## TOP 5 RESEARCH MEMORIES

#1

In building an equine research program here at Rutgers we first had to find suitable housing for horses. The barn at Ryders Lane seemed suitable... except for the decades of beef cattle manure, raccoon droppings, etc. that had to be removed when renovations were made. What a great way to spend a Thanksgiving weekend!

#2

Before the equine exercise physiology lab existed, Lord Nelson served as the demo for lectures that had an exercise component. We'd saddle him up, get on, and gallop him around the field on College Farm Road.

## 2009

Regular exercise can help restore and maintain an aging horse's cardiovascular health and exercise capacity, as well as the endocrine response to exercise to some degree.

## 2007

Glutamine, an amino acid important for protein synthesis, does not appear to have a regulatory role in protein homeostasis in the foal, contrary to what was previously thought.

## 2010

Bacteria implicated as having a role in chronic laminitis; and helped to explain why antibiotics fail to improve the condition.

## 2012

The characterization of the response of heat shock proteins (involved in repairing damaged proteins in every cell) to acute exercise in equine skeletal muscle began.

## 2008

Older mares may be immune-compromised during exercise, which may have an effect on their ability to break down and build muscle.

## 2011

Moderate exercise training appears to attenuate age-related changes in hormones associated with the response to glucose metabolism and energy balance.

## 2013

Both the pituitary and adrenal glands experience a decline in function with age although the exact mechanisms behind such changes remain unknown. Exercise training facilitates the counteraction of these deficits.

Continued on Pg.8

## #3

During Hurricane Floyd Malinowski was conducting a research trial which involved blood sampling for 24 hours. New Brunswick received 11 inches of rain in 24 hours and she could not get home for three days; once again sleeping on campus in her sleeping bag.

## #4

Weaning stress research was conducted in the early 80's at Boxwood Farm in Englishtown. Several students and Malinowski slept in the breeding shed on the concrete floor in sleeping bags... yet again... for three nights.

## #5

The first trial conducted with the newly installed treadmill included a mini sabbatical for our good friend and colleague Dr. David Horohov. When we got ready to run one of the old mares, Last Wish, she proceeded to sit down on the treadmill before it could even get up to speed.

**2014**

Studies of the effects of acute exercise on signaling proteins that mediate muscle growth began.

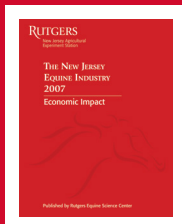
**2016**

Investigations of the effect of exercise on the microbiome of the horse are currently underway at the Center.

**2015**

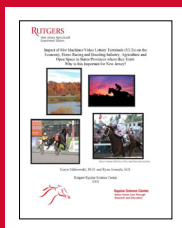
In response to the recent rise in cobalt use in horses as a potential performance-enhancing agent, studies got underway regarding the use of cobalt in horses to further understand its effects on performance and equine health.

## Scholarly Papers Produced by the Center:



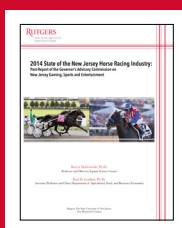
The Economic Impact Report was published, revealing that the equine industry contributed \$1.1 billion to New Jersey's economy annually. Horses also help preserve open space in the state.

**2007**



Karyn Malinowski and Ryan Avenatti author the pivotal paper, "Impact of Slot Machines/Video Lottery Terminals (VLTs) on the Economy, Horse Racing and Breeding Industry, Agriculture and Open Space in States/Provinces where they Exist: Why is this Important for New Jersey?", that provided data important to the rescue efforts of horse racing in New Jersey.

**2009**



Karyn Malinowski and Dr. Paul Gottlieb published a white paper entitled, "2014 State of the New Jersey Horse Racing Industry," reporting on the importance of the sport to the health of the equine industry and the state economy.

**2014**



# RUTGERS EQUINE SCIENCE CENTER

15th Anniversary Benefit Hunter Pace/Trail Ride

## Join Us:

Sunday, May 22<sup>nd</sup>

9:00am - 1:00pm

## At:

### Lord Stirling Stable

Somerset County Park Commission  
Lord Stirling Road  
Basking Ridge NJ, 07920



## Entries:

Teams of 2-3 Riders

Adult Rider - 19 & Over - \$40

Junior Rider - 18 & Under - \$35

## Division Awards:

Open Adults - 19 and over, and any other combinations

Junior - All team members 18 and under

Family - All team members in one family

## Current Coggins:

NEGATIVE WITHIN LAST 12 MONTHS **REQUIRED** AT CHECK-IN

To learn more about the Equine Science Center visit us at [esc.rutgers.edu](http://esc.rutgers.edu)

 [facebook.com/RutgersEquineScienceCenter](https://facebook.com/RutgersEquineScienceCenter)  [pinterest.com/RutgersESC](https://pinterest.com/RutgersESC)  [twitter.com/RutgersESC](https://twitter.com/RutgersESC)  [youtube.com/c/RutgersEquineScienceCenter](https://youtube.com/c/RutgersEquineScienceCenter)

**RUTGERS**  
New Jersey Agricultural  
Experiment Station

Hosted By: **Lord Stirling Stables**  
Part of the Somerset County Park Commission



# The History of The Equine Science Center

Starting with one faculty member, the Center now has a Director, 3 Associate Directors, a Public Relations Specialist, and tons of memories.



1978

## Laying the Groundwork

Karyn Malinowski starts as the Equine Specialist under the New Jersey Cooperative Extension.

## The Equine Science Center

2001

Rutgers University Board of Governors names the Equine Science Center as an official center at Rutgers University. Karyn Malinowski is appointed as the Director of the Center.

### Noted Horse Person Named Director

Dr. Karyn Malinowski, a nationally known specialist in equine sciences and animal sciences professor, has been appointed director of the expanded Equine Science Center.

Dr. Malinowski has been a faculty member at

and quality of life of the equine athlete, while ensuring the vitality and viability of the equine industry.

She has received numerous awards for her work, including a leadership award from the American Youth Horse Council, as well as the American Horse Council's Van Ness



2002

## Website Launch

Center Launches its website, [www.esc.rutgers.com](http://www.esc.rutgers.com).



## Ryders Lane Farm

2005

Work begins on building the Ryders Lane Best Management Practices Demonstration Horse Farm at the existing 30-acre, Ryders Lane facility.

2006

## Spirit of the Horse Award

The Center presents the first Spirit of the Horse Award, which recognizes individuals whose lives have been profoundly changed because of their involvement with horses and who have acknowledged the impact by giving back to the horse industry.

## Economic Impact Study

2007

Center publishes the award winning economic impact study, "The New Jersey Horse Industry 2007: Economic Impact"; the first of its kind for the state.

2008

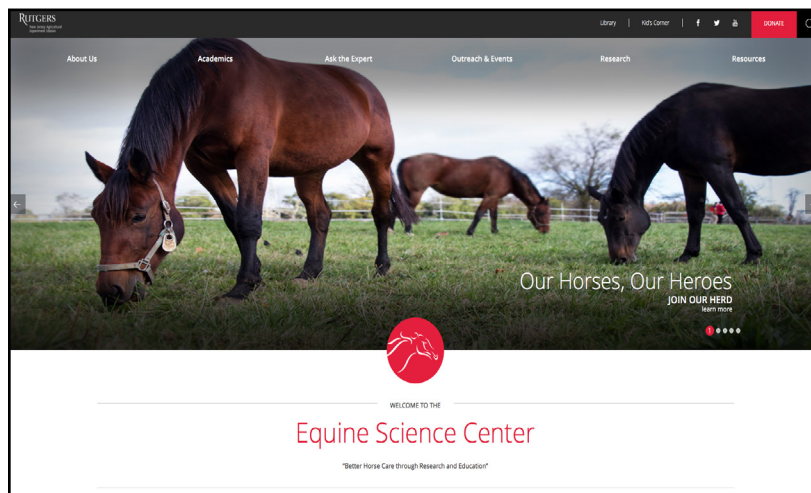
## Ryders Lane Farm

Center unveils the nation's first Environmental Best Management Practices Demonstration Horse Farm at Ryders Lane.



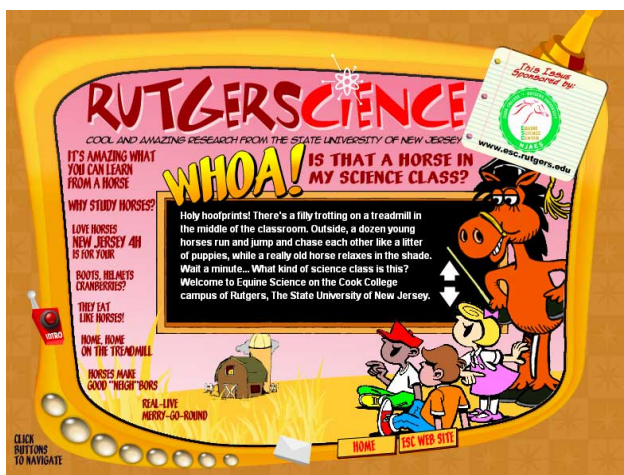
## Equine Science Center Re-branding 2015-2016

The Equine Science Center goes through a re-branding process for its website, brochures, and other resources. The process includes going to a digital format for its newsletter.



## 2013 Gold Medal Horse Farm Award

The Center presents the first "Gold Medal Horse Farm Award". The award and overall program gives recognition to outstanding equine farms for their dedication to environmental sustainability and management.

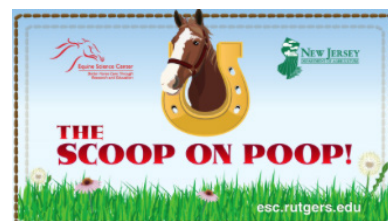


## Equine Science 4 Kids 2010

Center launches popular STEM education youth portal, "Equine Science 4 Kids", featuring Rutgers' beloved horse, Lord Nelson as its mascot.

## 2009 "The Scoop on Poop"

The Center and Lord Nelson begin the educational campaign helping NJ horse farm owners come into compliance with the new Animal Waste Management rule. The "Scoop on Poop" was a huge hit with farms and the public alike.



# Equine Science Center Releases New “Timely Topic” On The Dangers of Blister Beetles

**A**fter hearing rumors about a recent equine death in Florida due to blister beetles, the Equine Science Center has released a “Timely Topic” fact sheet about the dangers of these beetles.

Using research completed by the University of Missouri Extension, Kansas State University Extension, Washington State University Extension, the University of Arkansas Division of Agriculture Research & Extension, the University of Florida Entomology &

Nematology, the Extension Entomologist at the University of Kentucky College of Agriculture, and the University of California Integrated Pest Management Program, the Center has compiled a fact sheet that covers basics, toxicity and identification of blister beetles.

Below is the beginning of the this first “Timely Topic” fact sheet. To read the rest please go to:

<http://esc.rutgers.edu/news/blister-beetles/>

**RUTGERS**  
Equine Science Center

**Timely Topic**

## Blister Beetles

Recently, there have been reports of blister beetle poisoning in horses. You may be asking yourself, “What’s a blister beetle?” Blister beetles are plant-feeding insects (in the Family Meloidae) that just happen to have a taste for alfalfa. If a horse ingests just a few beetles, it can lead to severe colic and potentially death. These beetles are also toxic to sheep, cattle, goats, dogs, cats, rabbits, rats and humans. So, here is some basic information to help you understand more about the blister beetle and the risks to horses.

### **Toxicity**

Blister beetles contain a toxic chemical called cantharidin. The purpose of cantharidin is to protect the beetle from predators. Contact between cantharidin and external skin surfaces produces painful blisters, which, while uncomfortable, are generally not harmful and will subside on their own. Of greater concern is internal exposure if the toxin is consumed (Table 1). Cantharidin is present in beetles whether they are alive or dead, so the nasty side effects don’t go away with the demise of the insect. Cantharidin is a very stable compound that can withstand degradation by heating and drying. Thus, if the beetles are present in an alfalfa field and are crushed in the harvesting process, the toxin will still be present.

**RED BARN**  
**APRIL 30**  
**10:00AM - 4:00PM**

cook farm  
college farm road  
new brunswick, nj

**AG FIELD DAY AT  
RUTGERS DAY**

**HIGH-SPEED HORSES**

**Cook Farm/Red Barn**  
**1:00PM & 2:00PM**  
**Arrive 30 Min Early**

watch a horse run on  
a high-speed treadmill  
and learn about the  
research and education  
conducted by the center

**2016**

# Contact Us:

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