Newsletter Issue 2 Fall 2025

New Jersey Ruminant Report

Rutgers Ruminant Update

By: Tess Stahl, Ph.D.

It has been a busy and exciting time in the Stahl Laboratory! Around this time last year, I welcomed my first doctoral student, Alexis Birch. Lexie joins the graduate program from Purdue University, where she earned her B.S. in Animal Sciences. She is conducting research on ruminant and equine nutrition under the joint supervision of myself and Dr. Carey Williams (RCE Equine Management Specialist). Lexie's work contributes to my ongoing USDA Hatch project, Evaluation and Improvement of Non-Conventional Feeds for Livestock Diets. This project focuses on using non-conventional feed resources, such as agro-industrial by-products, to improve livestock nutrition. Aligned with the goals of Rutgers Cooperative Extension, the research addresses waste management, supports environmental quality, and enhances the economic viability of small and mid-sized farms by reducing feed costs. Key objectives include evaluating digestibility in ruminants, conducting feeding trials, and assessing preservation methods. The project ultimately supports agriculture and related industries across New Jersey, advancing NJAES' mission to maintain viable agriculture in the state. Current research in the lab includes investigating wet okara as a potential livestock feed. While some producers in New Jersey are already using okara as a protein source, little data exists on its utilization in ruminants or how best to incorporate it into diets. This spring (2025), we began in vitro and in situ digestibility studies on okara, a soybean curd residue by-product (from tofu production), comparing it to soybean meal and roasted soybeans. Our goal is to determine where in the ruminant digestive system okara is broken down. For comparison, soybean meal is a known source of ruminally degraded protein (RDP), while roasted soybeans are a known source of bypass protein (utilized in the small intestine). It is important to understand where okara fits to help nutritionists understand how to incorporate it into livestock diets. In the Spring (2026), we also plan to investigate shelf-life and preservation methods for wet okara. There is no current research on the storage of the wet product, so it is unclear how long you can get for storage and feed out. Preliminary analysis done on this byproduct shows it to be 30.9% dry matter (DM), meaning 69.1% of the praoduct is moisture. High moisture content increases the risk of spoilage due to mold and yeast, highlighting the need to study how the product can be stored, what its shelf life is (without preservation), and if preservation assists in increasing the shelf life of the feed. Lastly, we have also begun preliminary analysis on the use of common dandelion as a potential forage source for both ruminants and equine, but more on that in another article in this newsletter.

RUTGERS UNIVERSITY
New Jersey Agricultural Experiment Station

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Upcoming Events of Interest:

2026 Northeast Agricultural Expo in Atlantic City from January 20th to the 22nd!

There are 2 animal related sessions on Thursday, January 22nd, that I hope you are able to join us for. Morning sessions will focus on pasture management for horses led by Dr. Carey Williams (Rutgers Cooperative Extension), followed by an afternoon session I'll be leading on livestock products that will include information on improving genetics of replacement animals, increasing milk yield and quality, and carcass evaluation (with a live meat grading demonstration). Don't miss the special luncheon between sessions, featuring guest speaker Dr. Temple Grandin.

For more information, visit https://vganj.com/convention

Introduction to Myself and My Research

By: Alexis Birch

Ph.D. Student in the Rutgers University Department of Endocrinology and Animal Biosciences

Born and raised in southern Indiana, I am no stranger to the duality of the countryside. Cold, dark mornings and long, hot days were simply part of the rhythm of caring for animals. Looking back, those days when I felt oddly excited to choose what each animal would eat and watch them grow were the first signs of a passion I would eventually turn into a career. My enthusiasm for applied science and extension began early through experiences as a seven-year 4-H member in Indiana, and it has continued to grow through my current involvement with the Monmouth County Hunt. These experiences have shaped my commitment to pursuing research that delivers meaningful, practical benefits for New Jersey farmers and their animals.

I earned my bachelor's degree in Animal Science with a concentration in behavior and welfare from Purdue University in 2022, where I blended hands-on agricultural experience with a structured foundation in research. After graduating, I spent time traveling, working at an equine hospital, and completing a graduate certificate in Companion Animal Nutrition from the University of Illinois. I also completed two internships in zoological departments, which gave me firsthand experience balancing animal health, welfare, and financial sustainability across diverse feeding systems. These experiences solidified my interest in nutrition as both an applied and data-driven discipline, ultimately motivating me to pursue graduate school. In September 2024, I joined the Endocrinology and Animal Biosciences Department at Rutgers as a doctoral student under the advisement of Dr. Tess Stahl and Dr. Carey Williams. Their mentorship has been an inspiration and a guiding light as I begin developing the focus of my comparative animal nutrition research.

To begin pursuing applied research here at Rutgers (and out of simple curiosity), this past spring, Dr. Stahl and I collected samples of the common dandelion (Taraxacum officinale) from local pastures and sent them to Dairy One for preliminary nutrient analysis. We aimed to better understand what this abundant and often overlooked plant may contribute to grazing animals in the Northeast. Although typically viewed as a "weed," the dandelion offers ecological benefits for soil and pasture health, and livestock often selectively forage on it. Our early data supports a need to reevaluate its role: spring dandelion leaves contained (on a dry matter basis) 24.6% crude protein, and flowers contained 27.4% non-structural carbohydrates, values that suggest that dandelions may function nutritionally like a "starchier alfalfa." With New Jersey hay prices continuing to rise, producers face ongoing challenges related to forage quality, cost, and availability. According to the New Jersey Agricultural Experiment Station Board of Managers' needs assessment, many counties are actively seeking strategies to improve forage production, pasture management, and farm self-sufficiency. My research aims to support these goals by generating data that can help farmers design pasture systems that better meet animals' nutrient requirements while reducing reliance on concentrates and overall costs. Ideally, we will be able to begin mapping out a pasture management strategy that balances the beneficial inclusion of the dandelion with the necessity of valuable pasture grasses and legumes.

This coming spring, we plan to conduct a comprehensive vitamin analysis to examine potential seasonal patterns between plant nutrient composition and animal physiological needs. Our preliminary findings suggest the dandelion may offer greater benefits to livestock health than previously recognized. Ultimately, I hope this work will give farmers a clearer understanding of the unexpected role dandelions play in their pastures such as how they might improve soil health, reduce herbicide use, and enhance the overall nutrient density of available forage to the benefit of both their animals and financial situations.

New World Screwworm Updates for Animal Owners

By: Amar Patil, DVM, MVSc, Ph.D., Diplomate ACVM

Director of the New Jersey Department of Agriculture Division of Animal Health/State Veterinarian

New World screwworm (NWS), *Cochliomyia hominivorax*, is a species of fly found throughout portions of North, Central, and South America and the Caribbean. NWS is particularly devastating as the fly larvae burrow and feed on living tissue, often causing severe and sometimes fatal damage to animals. NWS can infest any warm-blooded animal, including livestock, companion animals, wildlife, and birds. In 1966, the NWS was eradicated in the United States with a sterile insect program developed by the United States Department of Agriculture (USDA). This sterile insect program created a barrier zone in Panama, keeping most of North and Central America free from NWS and preventing expansion into the United States. A breakthrough incursion in Central America occurred in 2023, with NWS progressing northward. As of May 2025, NWS has been detected in several Central American countries and Mexico. As Mexico shares a geographic border with the United States, on May 11, 2025, the USDA stopped moving cattle, horses, and bison across the U.S.-Mexico border. On September 21, 2025, the USDA announced a new confirmed NWS case in Sabinas Hidalgo, located in the state of Nuevo León, less than 70 miles from the Texas border. The affected animal was an 8-month-old cow with a history of recent movement from southern Mexico into a feedlot in Nuevo León.

Despite the halt of animal importation between the two countries, NJDA is asking animal owners to remain vigilant for this pest. As animal owners, you play a crucial role in spotting unusual signs early on.

What to look for in your animals that may be an indication of NWS infestation:

- Maggots in wounds or other body openings, such as the nose, ears, genitalia, or navel (in newborn animals).
- Wounds that have a bloody discharge or foul odor.
- Wounds that become deeper and larger as the maggots grow and feed on living tissue.
- Animals that have recently given birth, suffered an injury, or undergone a surgical procedure (such as dehorning or branding) are most vulnerable to attracting NWS.
- An animal had a recent travel history or was rescued from Central American countries or Mexico and has any of the above signs.

If an animal has had recent travel history from a Central American country or Mexico and has compatible clinical signs suggestive of NWS, contact your veterinarian immediately. Also, if traveling with your animal or acquiring an animal from out of state, be sure to evaluate the movement requirements for that animal before shipment or travel. At a minimum, a certificate of veterinary inspection is often required, assuring that an accredited and licensed veterinarian has recently evaluated the animal.

Resources for Owners:

- USDA APHIS New World Screwworm Webpage – provides information on the current outbreak
- USDA APHIS September 21, 2025 New World Screwworm Detection Information
- New World Screwworm – Texas A&M AgriLife Extension Service
- History of the Screwworm in the United States
- USDA APHIS- Hunter and Outdoor Enthusiasts
- USDA APHIS Pest Alert New World Screwworm
- CDC – Clinical Overview of New World Screwworm
- USDA APHIS FAO – NWS Life Cycle

The Groundwork of Grazing: Understanding Your Pastures' Soils

By: Craig Haney

Agricultural Specialist, North Jersey Resouce Conservation and Development

Autumn is the perfect season to step back and reflect on how your grazing year went, while also looking ahead to what your pastures are capable of next year. Flourishing pastures and healthy soils go hand in hand. Well-functioning soils capture, store, and move water; support vigorous plant growth; and recycle nutrients efficiently.

A good starting point is to understand the soil types in your fields and what they mean for your land's potential and limitations. USDA's Web Soil Survey offers interactive maps and detailed soil information for any field. While it can take a little orientation to use, there are great tutorials available. This 11-minute video tutorial from American Farmland Trust is an especially helpful resource to get you started. After you know the soil types in your fields, the Web Soil Survey descriptions can tell you a lot: how well the soil drains, whether it has limiting layers, and what its parent material is. These factors all shape which plants will grow there and how productive your pasture can be. Keep in mind, a healthy field in one place may look quite different from a healthy field in another, simply because of the soils they rest on.

Next, you can take your knowledge and planning a step further with the Web Soil Survey, by calculating your expected annual averages of forage production per acre for those various soils. Here's how: Once you have your soils mapped, click on the Soil Data Explorer tab. Under the dropdown menu for Suitabilities and Limitations Ratings> Vegetative Productivity> Non-Irrigated Capability Class (Component). Under Basic Options, check "pasture" and "View Rating" to see the expected average productivity for that soil, under high management conditions. The average yields are rated via Animal Units per Month (AUMs). This refers to the average number of 1,000-pound ruminant animals that could be maintained on pasture of that soil type for one month. At a minimum, it's helpful to know the relative range of production for different fields of your farm, or even within the same field. To begin determining stocking rates: 1. Calculate the total AUMs available for each soil type by multiplying the acreage of each soil type by its AUM rating. 2. Total the AUMs calculated for each soil type to arrive at the total AUMs available for your entire Area of Interest. 3. Divide the total AUMs by the number of months you intend to graze, to determine the total number of Animal Units (AUs) your pasture could support, with a high level of management.

Web Soil Survey helps highlight the relative differences in potential productivity of our pastures' soils. Image from Web Soil Survey- Soil Map

Equations:

1. Total Animal Units per Month (AUM) for each soil type = Acreage of soil type * AUM (or the average number of 1,000-pound ruminants that can be maintained on pasture for that soil type for one month

2. Total AUMs for entire Area of Interest (AOI) = Add up AUMs for each soil type

3. Total Animal Units (AU) that your AOI can support = Total AUMs for entire AOI / Number of months grazing = Stocking Rate

Example:

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LegC	Legore gravelly loam, 6 to 12 percent slopes	5.80	4.1	61.2%
NehB	Neshaminy silt loam, 2 to 6 percent slopes	9.95	0.7	11.1%
NehCb	Neshaminy silt loam, 6 to 12 percent slopes, very stony	0.60	1.8	27.7%
Totals for Area of Interest			**6.6**	**100.0%**

1. To determine stocking rate from the example above, multiply each soil type Rating (AUMs) by the Acres in AOI. The total of these are 23.78, 6.97 and 1.08.
2. Adding these together gives us a total of 31.83 AUMs for the entire 6.6 acres.
3. Next divide the total AUMs by the planned number of grazing months. If we plan to graze this example field for 8 months, we could stock 3.98 AUs, or 3,980 pounds of animal for that time period. If we plan to only graze for 7 months, then that number increases to 4.55 AUs. These stocking rates assume intensive management of the field and don't account for changes in forage growth caused by unusual weather. They also may not match natural growth curves of plants with the dry matter needs of certain types and ages of animals. But they do provide a good starting point to better understand a field's potential productivity.

The next step in getting to know your soils is to conduct a soil test. Collect samples to measure pH, organic matter, phosphorus, and potassium levels, as well as cation exchange capacity. These results provide a snapshot of your field's current condition and can reveal how recent management practices have influenced soil fertility. This video from Rutgers offers a helpful overview of how to take soil samples properly. If limited land availability has you looking to maximize production and corresponding stocking densities of animals, it's worth following the soil lab's recommendations. Optimum pH, potassium and phosphorus levels will allow the grasses, forbs (broad-leafed plants) and legumes in your fields to maximize their potential by promoting root development, facilitating water transport within the plants, and increasing stress tolerance and growth. When applying amendments, be sure that soil conditions are dry enough that heavy equipment won't create unnecessary compaction, and time applications carefully to reduce risk of nutrient run-off. I've known farmers who maintained healthy pastures without ever amending their less-than-ideal soils. However, achieving that typically requires excellent pasture management with frequent animal rotations, conservative initial stocking rates, and plenty of time. While adding phosphorus and potassium can help soils reach their full potential, the soil lab may also recommend nitrogen applications, which can be costly. Consider alternatives. Although hay fields without grazing animals may benefit from added nitrogen, integrating legumes and managing pastures with proper rotational grazing can supply nitrogen more sustainably and cost-effectively. Even adding large tap-rooted annual brassicas, such as forage radish, can make a good amount of nitrogen available as they decompose. Because of its fleeting nature and ability to be supplied in more sustainable ways, I generally don't recommend applying synthetic nitrogen to pastures. With time, attention, and use of available tools, understanding your soil can unlock new potential in your planning and management which ultimately results in flourishing fields, more productive livestock, and measurable improvements across your farm.

These topics and much more will be explored in detail at our upcoming Grazing School, to be held over two Saturdays in February, the 7th and 21st, at Duke Farms. We invite you to join us to deepen your understanding and refine your grazing management skills.

Grazing School is supported by Northeast Sustainable Agriculture and Education.

- Learn more about the Grazing School here: northjerseyrcd.org/grazing-school
- Or reach out to Craig Haney at chaney@northjerseyrcd.org.

More Information on *Theileria orientalis*

By: Sasha Lisowski, DVM and Tess Stahl, Ph.D.

Dr. Lisowski is a veterinarian with the New Jersey Department of Agriculture (NJDA) Division of Animal Health

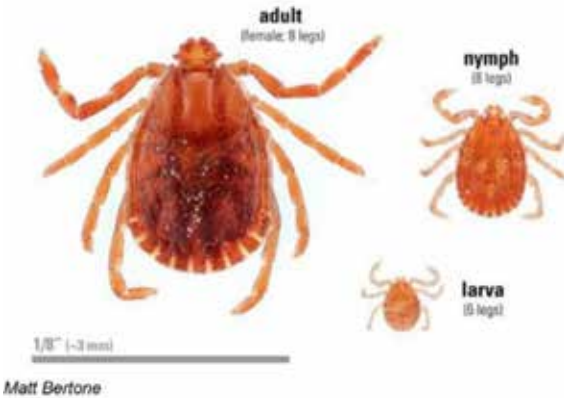
In the last edition of this newsletter, Dr. Dina Fonseca discussed the presence of *Theileria orientalis* in New Jersey and why testing for the Ikeda genotype is important. In this edition, I wanted to include an update on this parasite, as the NJDA Division of Animal Health has released more information explaining the parasite and signs/treatments available. This information is summarized below, and can be found here. They also had launched a free testing program in 2025 (subject to availability in 2026) to partner with cattle producers and veterinarians to track and manage the emerging *Theileria orientalis* Ikeda parasite in New Jersey herds.

What is *Theileria orientalis* Ikeda?

Theileria orientalis is a blood-borne parasite that infects cattle.

While several types of T. orientalis occur in the U.S., only the Ikeda genotype is known to cause severe illness or death. This malaria-like parasite can lead to anemia, weakness, jaundice, weight loss, and, in severe cases, death.

The Ikeda strain causes significant economic losses in cattle industries across Asia, New Zealand, and Australia. It is transmitted by the Asian longhorned tick (*Haemaphysalis longicornis*), which was first identified in 2017 (by Rutgers' Center for Vector Biology (CVB)) in Hunterdon County, NJ on a sheep. Now, has been found in over 20 U.S. states, including New York, Pennsylvania, Maryland, Virginia, West Virginia, North Carolina, Tennessee, and possibly Georgia. As for NJ, the Ikeda strain was first detected in cattle located in Warren County in November 2024, and since then, additional detections have occurred in Hunterdon, Somerset, and Warren Counties through NJDA testing.



How is it Spread?

T. orientalis is transmitted by the bite of an infected tick, not through direct contact between animals. Asian longhorned tick populations are typically active from March through early November.

What are the Signs of Disease in Cattle?

- Anemia (low red blood cells)
- Pale gums, jaundice (yellow eyes/skin)
- Fever, weakness, elevated heart/respiratory rate
- Inappetence (loss of appetite)
- Weight loss or death

Infections can range from mild to severe. Pregnant heifers, calves, and newly introduced animals are most susceptible. Infected cattle can remain carriers for life and serve as ongoing sources of infection if ticks are present.

How is it Treated?

There is no approved treatment or vaccine for *T. orientalis* Ikeda in U.S. cattle. Prevention through tick control is the best defense, including: using veterinarian-approved tick control products (e.g., pour-ons, ear tags), regularly inspecting animals for ticks, and discussing tick management strategies with your veterinarian.

Announcements:

The NJDA Division of Animal Health would like to express their appreciation towards New Jersey's Dairy Producers for their continued quality management practices that assist in keeping New Jersey an unaffected state through USDA APHIS National Milk testing for Highly Pathogenic Avian Influenza! Thank you for your efforts.

Meet Rutgers New Research Animals!

DAHLIA

DAISY

ROSIE

RUTGERS UNIVERSITY
New Jersey Agricultural Experiment Station

New Jersey Ruminant Report

Editor:

Tess Stahl, Ph.D.

Our Efforts

The Ruminant Report Newsletter provides information from a multi-discipline group of Rutgers NJAES Cooperative Extension Specialists and Agents representing diverse expertise in animal and forage crop production. This issue also includes a North Jersey RC&D specialist, the NJDA State veterinarian, and a NJDA veterinarian. The Rutgers NJAES Cooperative Extension Specialists and Agents through the Ruminant Report Newsletter will present current, relevant, and innovative information to you on a biannual basis.

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Rutgers Farm Instagram

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