

New Jersey Ruminant Report



Meet the New Specialist

By: Nicholas T. Bello, Ph.D., Professor and Chair Department of Animal Sciences

I am pleased to announce that Dr. Tess Stahl has joined the Department of Animal Sciences as a Livestock and Dairy Extension Specialist. Dr. Stahl grew up in Hackettstown, NJ, and completed her Associate's degree in Business Management at WCCC. She then attended Delaware Valley University for her Bachelor's degree in Livestock Science and Management with a Dairy Science Minor. At DVU, Dr. Stahl was active in the Dairy Challenge competition where she was able to put her business management degree to use through whole-farm evaluations. She attended graduate school at the University of New Hampshire receiving the M.S. (2019)



and Ph.D. (2023) degrees in Agricultural Science, focused on dairy nutrition. Her Master's research involved feeding additives to post-weaned Holstein heifers, evaluating growth performance, nutrient digestibility, and health. Her Ph.D. research evaluated colostrum production in prepartum multiparous Jersey cows. In her first experiment, she evaluated the effects of feeding two levels of dietary cation-anion difference and niacin (vitamin B3) supplementation on cow, colostrum, and calf performance. In her second experiment, she created models to predict colostrum yield, quality, and IgG yield utilizing 28 herds from across the country. Dr. Stahl also has experience with byproduct feeds, helping on experiments with Brewer's grains and conducting her own research on the digestibility of crab and lobster meal. We are excited to have Dr. Stahl as part of the Department of Animal Sciences Faculty. She brings an excellent background to New Jersey and is prepared to help farmers succeed. I know you will welcome her to Rutgers Extension, and I hope you will be as impressed by Dr. Stahl as we are.

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To access additional information listed throughout, please visit our online Newsletter at:
<https://njaes.rutgers.edu/ruminant-report/>


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Research and Outreach Plans for New Jersey


By: Tess Stahl, Ph.D.

I am so excited to be at Rutgers and to start serving the needs of you, the ruminant owners, in my home state.

My research interests are divided into three areas:

1  The impact of the prepartum period on colostrum yield and quality, as well as the early development and health of neonatal ruminants

2  The growth and development of pre- and post-weaned ruminants

3  Co-product/byproduct feed utilization in livestock diets

Ultimately, I feel that my research plans over the next few years both satisfy my interests and can directly benefit ruminants in NJ.

I am ruminating on ideas for RCE meetings, short courses, and online content. According to a needs assessment done by the NJAES Board of Managers (one that likely many of you responded to), there is a great need for small ruminant programming. With that in mind, be on the look-out for Spring programming involving both sheep and



The following factsheet may be helpful:

["Burning your bottom line: how hot hay changes forage quality!"](#)

University of Nebraska, Lincoln.

Two regional forage laboratories that can test for heat damaged protein are:

1. Cumberland Valley Analytical Services
2. Dairy One Laboratory, located in Ithaca, NY

Heat Damaged Forage

By: Mike Westendorf, Ph.D.

Forage that is put up too wet is always at risk of overheating, spontaneous combustion, and resulting fires.

It can also undergo a process called enzymatic browning that occurs in the presence of protein and sugars when forage put up too wet overheats, this was a concern on one farm over the summer. The resulting compounds (called "Maillard" products) will make protein in forage unavailable to the animal and hay may be unsuitable for ruminant digestion.

One means of determining the level of heat damage is by analyzing the forage for ADIN (Acid Detergent Insoluble Nitrogen), sometimes referred to as heat damaged protein. This value that is available on a forage test can be compared to total protein and the level of damage determined.

Some Reminders:

- High temperatures in bales (>170°F) can result in reactions between proteins and sugars called the Maillard reaction
- Hay impacted will be sweet/tobacco smelling and brown/caramel colored
- While highly palatable, the reaction creating this hay ties up protein, making it unusable for animal digestion
- If significant signs of Maillard reactions are seen in your hay, add a Heat Damaged Protein (HDP) test to your forage analysis to get accurate Crude Protein values
- Hay also has a high likelihood of containing larger amounts of mold growth. And please don't forget other contaminants that can be concerns in wet or dry years such as mycotoxins, nitrates, etc.
- Diluting the bad forage with good forage or grain is a possibility
- Check with an extension agent or other authority before feeding



Photo: Nick Romanenko ©2020 Rutgers, The State University of New Jersey

Addressing the Threat: Why we Should be Testing Cattle for *Theileria orientalis* in NJ

By: Dina M. Fonseca, Ph.D.
Director of the Rutgers
Center for Vector Biology

The *Theileria orientalis* genotype Ikeda, a parasite responsible for substantial economic losses in cattle across Asia, New Zealand, and Australia, is transmitted by the Asian longhorned tick, *Haemaphysalis longicornis*. First identified in 2017 in Hunterdon Co., NJ, on a sheep, this tick has since been detected in 19 mid-Atlantic states. In 2017, a cattle herd in Virginia displayed clinical signs consistent with a hemoprotozoan infection, resulting in seven deaths. Subsequent investigations in 2018 revealed the pasture was infested with Asian longhorned ticks, some of which were infected with *Theileria orientalis* Ikeda. Further studies demonstrated that US strains of this tick can transmit this deadly malaria-like blood parasite. *Theileria orientalis* genotype Ikeda has now been identified in herds spanning New York, Pennsylvania, Maryland, Virginia, West Virginia, North Carolina, Tennessee, and potentially Georgia. Despite the presence of other more benign *T. orientalis* genotypes in the United States, the identification of the Ikeda genotype raises concerns about its potential impact on the cattle industry in the country.

Members of the Rutgers Center for Vector Biology (CVB) were the first to identify established populations of the Asian longhorned tick in the US. We have developed extensive surveillance for protozoan parasites such as *T. orientalis* in hundreds of Asian longhorned ticks collected from around Cook including the areas around College Farm Rd., where a small herd of cows, goats, sheep, etc., is kept and have not detected *Theileria orientalis*. This was a small survey, primarily focused on wildlife not livestock. It appears that no one is conducting tests for protozoan parasites

on New Jersey cattle. We are offering to perform highly sensitive state-of-the-art DNA-based tests on blood samples from any NJ livestock. A small drop of blood is all we need. Determining whether New Jersey cows are free of *T. orientalis* would provide valuable insights into the spread of this harmful parasite. Any positive results will be provided first to the farmers, as well as support to address spread.

Please send an email to vbcenter@njaes.rutgers.edu if you would like to submit samples.

For those interested in additional information on *T. orientalis* genotype Ikeda, the USDA provides a comprehensive resource in the [Theileria orientalis Ikeda Notice](#). As we navigate the potential risks posed by the Ikeda genotype in the United States, collaborative efforts and proactive testing are essential to safeguarding the health and well-being of our cattle and, by extension, the economic stability of the industry.



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Image: A side-by-side comparison of Asian longhorned tick (ALT) adult and larva blood feeding (larvae have only 3 pairs of legs)

RU Ready to Farm? Beginner Farmer Training Program



By: William Hlubik, M.S.

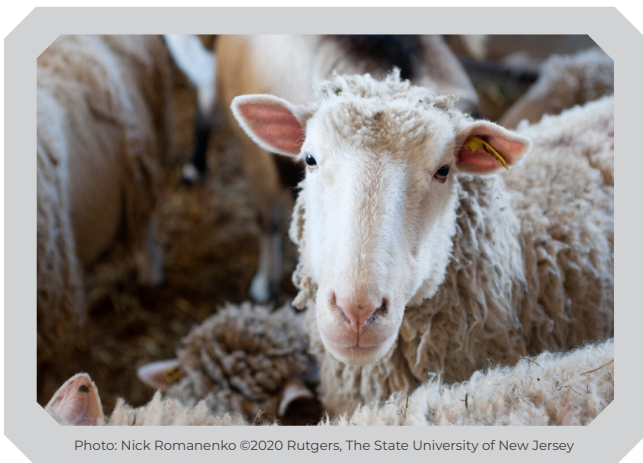


Photo: Nick Romanenko ©2020 Rutgers, The State University of New Jersey

This program is best suited for small to mid-scale farmers looking to raise specialty, niche crops and livestock. We welcome pairs or teams who would like to participate together. We are here to help you achieve your farming dreams!

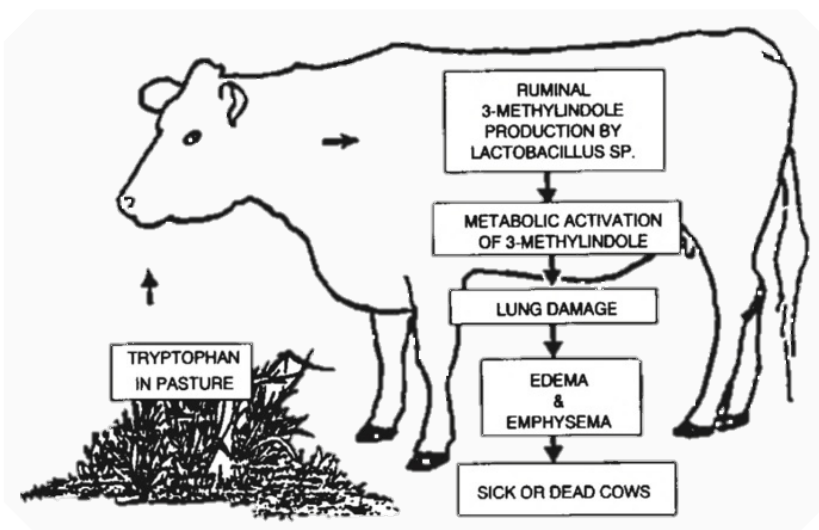
Known as the Garden State, New Jersey is an exciting place to farm. But for new and beginner farmers attempting to break into the agriculture industry for the first time, it can be a daunting dream. The Rutgers Beginner Farmer Training Program 'RU Ready to Farm' has set out to address the statewide hurdles that prevent new farmers from achieving success in agriculture. Now entering its fourth year, the RU Ready to Farm program has developed a comprehensive, unique, and practical resource for beginner farmers, a historically underserved population in agriculture. The goal of this program is to provide the necessary training and networking to increase the chances of success for new farmers. This is accomplished through a three-phase program. Phase 1 includes a fifteen-session online course covering the basics of farming, and several in-person field trips to successful local farms. Phase 2 consists of hands-on training on a designated plot of land provided by the program. Guided and trained by program staff, the participants run a cooperative CSA from planning to planting, and then harvesting and packing shares for customers. In Phase 3, the program team provides support for participants to start growing on a farm business incubator site provided by the program, to secure their own land, or to start working with experienced successful farmers.

Acute Bovine Pulmonary Edema (ABPE)

By: Mike Westendorf, Ph.D.

This is a metabolic syndrome that affects ruminants, particularly cows, on lush fall pastures and at least one New Jersey farmer had an animal fall victim to it. It is sometimes referred to as "Fog Fever".

ABPE often occurs in cattle, *transitioning from dry summer pastures or poor-quality forage in the fall, to pastures that may be lush and fresh*. Cows may develop signs of lung disease within a few days to two weeks after the pasture change. Death may occur within several days after the appearance of clinical signs. It is nearly always fatal.



[Acute Bovine Pulmonary Edema and Emphysema](#) in Beef Cattle: Causes and Prevention
(see *Beef Cattle Handbook*; D.C. Honeyfield and J.R. James R. Carlson)

This is related to an undesirable toxin produced by rumen fermentation. Tryptophan is an amino acid found in protein. It is converted to indoleacetic acid and then to 3-methylindole (3MI) in the rumen. 3MI is absorbed into the blood, transferred to the lungs, and in the lungs can cause damage to lung cells.

It can occur in a variety of forage types, especially when the rumen is not properly adapted to the new forage.

Preventative measures:

1. Feed cattle good quality dry hay for a few days and then slowly introduce them to the lush pastures by increasing grazing time over a 10-14 day period.
2. Delay grazing of lush pastures until after a hard frost.
3. Cut lush fall pastures for hay prior to grazing.
4. Graze prior to lush fall regrowth.
5. Consider feeding an ionophore such as Rumensin® or Bovatec® before turning the cattle onto the lush pastures. These compounds change the rumen fermentation of tryptophan and may decrease the chances for ABPE or "Fog Fever". Consult your veterinarian for advice if you anticipate using either of these compounds to prevent ABPE.

Finish the Fight Against Scrapie: Brains Needed!

By: Alison Stout, DVM, PhD, MPH



Assistant Area Veterinarian in Charge-NJ

USDA APHIS Veterinary Services

The United States is nearing the goal line after a 70-year battle against Scrapie, a fatal disease that affects the brain of sheep and goats. Sheep and goat producers can help the USDA achieve this goal. The current program has been very successful to drastically reduce the amount of scrapie in the US. One of the most difficult aspects of an eradication program is making sure that the last few cases of the disease are found. The most recent two cases of scrapie found in the US were sampled at slaughter but could not be traced back to a farm origin. One of these cases was a sheep in Wisconsin in 2021 and another was a goat tested in Indiana in 2019. Because these animals did not have adequate records and identification to find where they came from, it is likely there are still farms with cases of scrapie. For a country to be declared free of scrapie, international standards require a certain level of testing among all sheep and goat populations within a country. No samples can test positive for classical scrapie. The samples we need to test are brain and a lymph node. Each year every state is given a minimum number of samples to be collected based on the breeding sheep and goat populations. This assures sampling represents the different populations.

In fiscal year 2024, NJ needs to sample 32 mature (>18 months) sheep and 22 mature goats. We continue to ask for help from our New Jersey small ruminant industry to obtain these samples. If a producer has an adult sheep or goat that dies, that must be euthanized, or is being culled please contact USDA, APHIS, Veterinary Services at 609-241-2236. There is no charge for the collection or testing of the samples.

Producers may be eligible for official plastic tags as long as our supplies last. Scrapie is in the same family of diseases as bovine spongiform encephalopathy (mad cow disease) and chronic wasting disease of deer and elk.

Filling the Nutritive Plate: Shellfish Dinner... for Ruminants?

By: Tess Stahl, Ph.D.

While at the University of New Hampshire, I worked on a side project that was not part of my doctoral research. My advisor, Dr. Peter Erickson, and I were approached by Alan Abend from the School for the Environment, University of Massachusetts: Boston. Alan was working on his Ph.D. finding alternative uses for crab and lobster processing waste. New England is a major contributor to the shellfish industry, amounting to hundreds of millions of pounds of shellfish harvested at all commercial landings. Due to this, there is a significant increase in processing wastes in seafood processing facilities. Waste products, which include shells and entrails, are coarsely ground and currently used for landscaping fertilizer or otherwise disposed of in landfills. Finely ground, dried crustacean shells were provided to test the

nutrient availability to dairy cattle. The cannery we collaborated with to obtain the shellfish meals for this experiment was processing the meat for human consumption. The shellfish were heated to 180°F, and the shell wastes were then dried and ground. The nutrient digestibility project conducted at UNH revealed the crustacean meal to be more like blood meal, in that they function as rumen undegradable protein (RUP) sources. **These products had moderate crude protein levels (about 20%) and high mineral content, so they show promise for inclusion in ruminant diets.** The next step would be a preference study, as the meal is quite pungent, and animals may choose not to consume them. If further research into the meal shows promise, there is potential to continue this work utilizing the Blue Crab of the Mid-Atlantic region to benefit farmers in this region.

Rutgers Livestock Processing Needs Assessment Survey Results

By: Hank Bignell, M.S., Teaching Instructor for the
Department of Animal Science at Rutgers University

Team members on this project included: Hank Bignell, Steve Komar, Brian Schilling, Kevin Sullivan, Michael Westendorf, and Dan Wunderlich.

Access to USDA inspected slaughter and processing facilities is a significant obstacle to profitable livestock production. There are some options in New Jersey, but these are often limited by capacity, availability, location, or they are cost prohibitive. Although there is anecdotal evidence to support this need, there has been limited research conducted to quantify the demand for USDA slaughter and processing facilities in NJ. The objectives of the project described were 1) to evaluate the status of livestock slaughtering and processing capacity in New Jersey; 2) to assess the needs of the livestock industry related to livestock processing and marketing, and; 3) to determine any additional needs that could enhance the profitability of the New Jersey livestock industry. A survey of livestock producers was conducted between March and April, 2021. An e-mail sampling procedure was created and producers were contacted based on participation in an agricultural organization (New Jersey Farm Bureau - NJFB) or listed on a New Jersey Agricultural Experiment Station (NJAES) e-mail list. Producers received an initial e-mail survey distributed by NJFB and NJAES distribution lists, a follow up reminder two weeks after the initial e-mail, and a final e-mail reminder two weeks later. Survey links were also publicized in NJFB newsletters or through NJAES educational

programs. Respondents were prompted to self-identify as livestock producers. Livestock producers were requested to complete surveys online or were given the opportunity to request a paper copy of the survey. 149 people identified as producing meat products and filled out the survey. Most producers in this survey were small scale, with less than 2% of farms accounting for 75% of livestock revenues in the state. Almost 60% of producers reported livestock production as a supplemental source of income. Most were dissatisfied with processing capacity, some producers indicated wait times of up to 5 months for slaughter and processing appointments. Most producers ranked the availability of USDA slaughter and processing facilities as the most limiting factors for growth of their operation. Other factors including farm infrastructure, land availability, capital, pricing, and access to replacement animals were reported as being significantly important among producers. Time and labor were not reported as being a limiting factor for growth. Consumer demand was clearly not a concern among current producers and had little impact on growth of the industry. Most of those surveyed would increase production if USDA slaughter and processing capacity in the state was increased. According to those surveyed a 10% increase in livestock production would yield an estimated 19% increase in gross revenues, and a 60% increase in livestock production would yield an estimated 65% increase in gross revenues. This project highlighted the need for increased livestock slaughter and processing facilities in the state. Hopefully momentum created by this survey supports efforts that assist the State's livestock industries.





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 Specialist in vector biology, and a USDA APHIS 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.

Upcoming Events of Interest:

Be on the lookout for twilight meetings, small ruminant in-person training, and other helpful ruminant content to come in the coming months!

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