



THE CREAM CHRONICLES

**Spring Semester
Volume 1, Issue 2**

Thank you...

The CREAM class wanted to express our gratitude to the people who worked tirelessly at the barn over the winter break. While we went home, the barn workers undertook the extra responsibility of our CREAM string and calves while also maintaining to their best effort the other three strings. Hannah Majewski, Rachel Luddy, and Christian McKinnon are three of our CREAMers who also work at the barn.

**Check out our
special interest
articles**

**Where are past
CREAMers now ...
pages 9-10**

**What is One Health?
Pages 5-6**

**Hood Plant Tour,
pages 15-16**

**The Daring Rescue,
page 3**

**Follow @unhcream on
Instagram**

**Or
Check out our website
[HTTPS://MYPAGES.UNH.
EDU/UNHCREAM/HOME](https://mypages.unh.edu/unhcream/home)
to see what we do next!**

THE NEW DIET FAD EVERYONE IS TALKING ABOUT ...

Written by Jillian Broadhurst

Over this past fall semester, the CREAM class implemented a big change in the management of our herd: splitting the string into high and low diet groups. This modification was led by our Nutrition subcommittee, a small group of CREAMers including Emily Gerraughty, Hannah Majewski, Paige Barnes, Nate Adams, and Lily Mitchell. They worked closely with farm staff to develop a plan and obtain approval for the new diets, meeting regularly to enact this change. These students put a tremendous amount of work into executing this strategy to help optimize our production. When all was said and done, the group agreed to answer some questions for me to communicate just how they did it:

How did you determine which cows would be grouped into each diet?

Emily: “Cows were grouped together based on their current stage in lactation and milk being produced at that time. Any cows which were making around 75lbs or less and were on the latter side of their lactation such that they were declining in milk (rather than still having room for improvement) were put on the low diet to increase profits and promote health of the animals. Any cows producing above 75lbs or which had recently calved and were past the 14-day period of being fed the pre-fresh diet, were to be given the high diet.”

What was each diet comprised of, and what changed from our original diet?

Hannah: “The biggest change from the high diet to the low diet cows is that they are fed a little less, there is more hay silage compared to corn silage, and no bergafat, rumen protected amino acids, or bloodmeal.”

Did you see positive results with this change?

Nate: “We definitely saw positive results in adjusting the amount of feed we gave the cows. More feed made it easier for the cows to have higher intakes, which led to our production going up 2-3lbs from 82 to 85lbs per cow which was great. The perk of the high and low diet had to be the savings; cows that were further along in their lactation making less than 75lbs were put on low diet to ensure we weren't wasting money in ingredients that didn't benefit the cows much. With the adjustments we made, in theory we generated more revenue while minimizing cost, which is exactly what a dairy farm's focus should be.”

Do you think it would be worthwhile for future CREAM classes to implement this?

Paige: “I think it is worthwhile for future CREAM classes to implement a high and low diet to see better use of CREAM finances so they are not feeding a more expensive diet to the low diet cows who will not achieve as high of production as the high diet cows, and so they can learn what it is like to work with a nutritionist to make a change that directly impacts the cows.

The implementation of the high and low diets was clearly a success, with the herd experiencing rises in production while simultaneously cutting expenses. What is even more impressive is that this idea was formulated and carried out by students themselves working together to improve our barn. I cannot help but think that this exemplifies what CREAM is all about. Thank you to our Nutrition team for your hard work!

THE DARING RESCUE

Written by Hannah Majewski

There is a never-ending list of the challenges of dairy farming and the UNH Fairchild Dairy Farm is no exception. While chores usually run seamlessly and smoothly, there are occasions when something goes wrong. This was the case in December of 2018. Mark Trabold, one of the assistant managers at the farm was about halfway through milking the herd when he heard his name being frantically called from the lactating cow barn. After rushing down to see what the problem was, he realized this was going to be one of those mornings that would be more eventful than usual.

Most dairy barns have some form on a gutter system to take manure out of the barn, and into some type of storage to eventually be spread onto fields. At UNH, there is a "gravity flow" gutter system. How this works is there is a trench behind all the cows that starts out shallow and gets deeper so that all the manure will convene in one spot, and then eventually all flow out to the manure pit. The downfall to this is that in some spots the gutter can reach ten feet deep. On that morning in December Mark ran down to the barn to find that one of the milk cows, Ruby, had fallen through the gutter in the deepest spot in the barn, and had to be pulled out. How Ruby got stuck in the first place is another downfall to the UNH manure system. There are grates covering the trench, however one of Ruby's hooves got caught in a grate, and because it frightened her, she lifted the grate, but the weight of it pulled her backwards into the trench.

This would be no easy rescue operation. At the time there was a total of seven people working at the barn and it was all hands on deck. Mark jumped in with Ruby so that he could put a halter on her head to be able to keep it above the manure. This was a rather dangerous decision as oxygen levels are lower in the trench due to the amount of

methane, and the temperature is much colder, causing possible hypothermia. After the halter was on her, it was time to strategize how to get Ruby out. The barn has a cattle lift can be strapped around the cow, and then an electronic hoist can lift them up. The issue with this is that Ruby was too deep, and the lift could not reach, and she would have to reorient herself to be able to be lifted out (cows are not as cooperative as humans). At this point the manger, Jon Whitehouse arrived and called for backup. Moments later the Durham Fire Department along with McGregor EMS arrived to help rescue Ruby. Concerns for the health of both Mark and Ruby in the trench were top priority. The final solution to the problem was to have the fire



department walk underneath an alley way, in the gutter to help turn Ruby around so she could be lifted. Thankfully, the plan worked, and Ruby was able to be pulled out.

A year later we can thankfully report that Ruby is in excellent health, and even had a heifer calf named McGregor in honor to thank the first responders that came to help rescue her. Extra precautions have been taken such as adding more chains to the grates and covering the grates with high foot traffic with rubber mats. The barn staff is appreciative of everyone who assisted in the rescue of Ruby that day and hope an event like this never happens again.

CAN YOU STOMACH THIS?

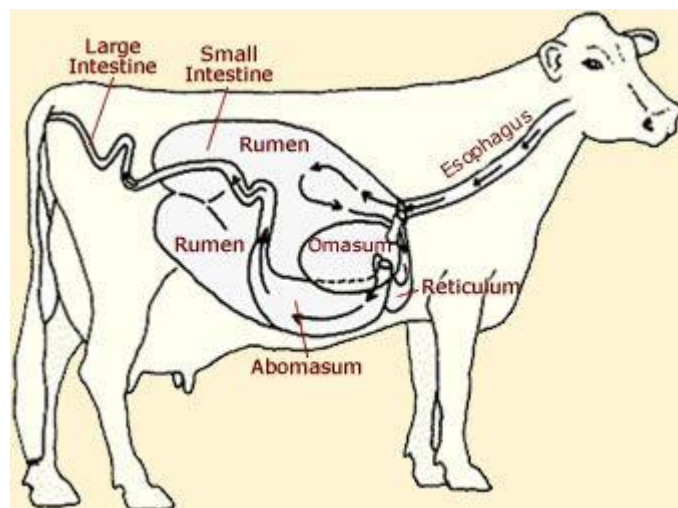
MAGNETS, HEIFERS, AND DISEASE PREVENTION

Written by Jeanne Marie Cassidy

During the fall semester a handful of UNH CREAMers, worked with farm manager Jon Whitehouse to help give some of the heifer's magnets. Magnets are an important part of preventative medicine for a dairy cow. When swallowed the magnet sits in the first of a cow's four stomachs; the reticulum. The theory behind this is that if the cow eats something metal such as a nail, this foreign object will get stuck to the magnet and not travel into the other parts of the stomach. In addition, it will be less likely to perforate through the stomach wall into the abdomen causing a disease known as bovine traumatic reticuloperitonitis (common Hardware disease).

Paige Barnes was instrumental in teaching us how to insert the magnet into the heifer, as she had performed this procedure before. I was one of the students who came and participated and got to give my CREAM cow Queso her magnet, which made the learning experience even more fun. Another CREAMer Jillian Broadhurst has also been working with Jon to learn more about Hardware disease as it relates to UNH and was the one who first suggested that CREAM students help give the magnets. The hope is that during the spring semester more CREAMers will take the opportunity to join in and help get the remainder of the cows and heifers that need magnets covered.

Overall this experience was so a really great experience for those who have an interest in continuing onto to veterinary school as well as for those who want to continue to manage dairy, and we are grateful for the opportunity to take part.

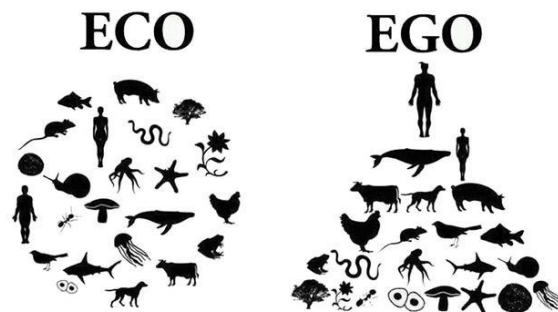


WHAT THE HEALTH IS ONE HEALTH?

Written by Amanda Patev

On Thursday 1/23, Dr. Vanessa Grunkemeyer came in to speak with us about One Health and how farmers and veterinary professionals contribute to promoting it. One Health is a global initiative that recognizes the connections between humans, animals, and the environment and helps to support the bonds between them. Some main focuses of One Health include disease, food systems and security, the human-animal bond, and ecosystem health. These are important for many reasons. Interactions between human and animals are becoming increasingly important as almost three-quarters of emerging infectious diseases that affect humans originated in animals and there are currently over 200 emerging infectious diseases that are zoonotic.

“... almost three-quarters of emerging infectious diseases that affect humans originated in animals and there are currently over 200 emerging infectious diseases that are zoonotic”



Malaria and Ebola are just two examples of diseases that were originally found in animals, but over time somehow gained the ability to infect humans. There are many reasons for this. Environmental issues such as contamination and pollution may create conditions favorable for bacteria to subsist longer. Our growing population greatly affects our interactions with animals like never before, especially wildlife. Destruction of natural habitats leads to more human-animal interactions, allowing for easier spread of pathogens. A growing population also means that we need to find ways to provide for the people, especially sustenance. Doing so requires finding alternate food sources, increasing food production, and improving access to food. However, our increasing interactions with animals are not always bad. The human-animal bond that we may have, for example, with our dogs is actually beneficial for our human health. Therefore, keeping our furry friends healthy improves our health too!

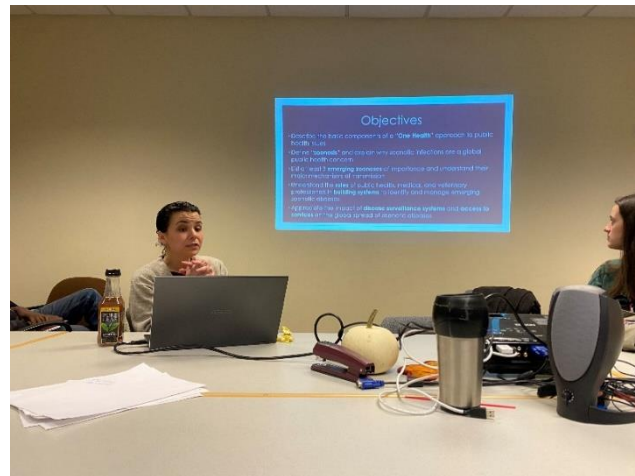
We have lots of government agencies in the United States that help encourage and support this idea of One Health. Entities like the United States Department of Agriculture (USDA), Center for Disease Control (CDC), Food and Drug Administration (FDA), and state Departments of Agriculture and Health are just some of the many government run divisions that are included. These agencies do things such as enforcing regulations on animal transport between states, welfare, food safety, laboratory testing, and controlling outbreaks of disease. There are many other collaborators in the One Health movement, including the World Health Organization (WHO), the National Institutes of Health (NIH), and World Organization for Animal Health (OIE).



When we get an email saying people in New Hampshire have Coronavirus symptoms

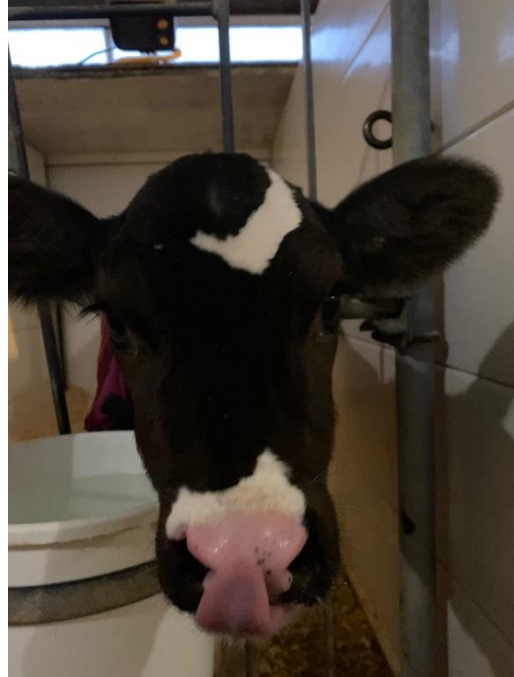
So, you may be asking: what does any of this have to do with livestock producers? It's simple – anyone who works with livestock in a close proximity are the ones who are going to recognize a problem and be able to alert the appropriate people. There are many impacts of disease in livestock other than the welfare of the sick animal – potential for zoonosis, decreased production, and economic loss (both the farm and community) are major concerns for anyone whose livelihood depends on healthy production animals. Diseases like foot and mouth and rinderpest (which has successfully been eradicated as of 2011, yay!) would be devastating for our country's economy. The best way to prevent spread of disease, either here at UNH or at any other farm, is to practice good biosecurity. Biosecurity can be defined as all practices taken to prevent pathogens from leaving one area (i.e.: hairy heel warts at UNH) and bringing them to another farm. This can be done by minimizing traffic through the barn, proper sanitation and disinfection, and controlling pests, which can act as vectors of disease.

Something interesting that we learned was that our shoes/boots are the most common fomite, or nonliving thing that can transport the disease from one place to another. That's why we have boot washes at the door to the barns here at UNH, which many of us should probably utilize more! Apart from biosecurity, preventative measures such as regular exams and vaccinations are a great way to boost immunity and catch problems before they become serious. Controlling disease by obtaining the proper health certificates and permits needed to transport animals is also important for livestock producers to keep in mind as well.



Understanding the role that we as livestock caregivers play in promoting One Health is so important. We are the ones who need to be able to recognize disease and report it if necessary. Reporting helps to identify a potential outbreak and helps to limit the spread of disease to other farms. This is going to become more and more important as emerging zoonotic diseases appear, threatening our lives and the lives of our animals. Case in point: the recent coronavirus outbreak (Wuhan Virus), which has been hypothesized to be an animal disease that has made the jump to humans. One Health isn't just for veterinarians, doctors, researchers and government officials. It's for everyone, including us CREAMers just trying to get through our early morning shifts. Our role in One Health is definitely not something many of us have ever thought about, but thanks to Dr. Grunkmeyer's eye-opening lecture, it definitely will be now. Thank you to Dr. G for taking the time out of her busy schedule to share her passion for One Health with us and let us in on another exciting aspect of veterinary medicine!

CALF CORNER!



Name: Roza (1071)

Birthday: 12/23/19

Zodiac Sign: Capricorn

Dam: Jem (794)

Likes: To jump through the head gate and go crazy, go stupid

Dislikes: Being put back in her stall, wearing a coat

Fun Fact: Roza was born one month premature

CREAMeme

By Hannah Weber

Happy Winter Birthdays to:

Queso (971) 1/19/18

Skunk (973) 2/08/18

Lentil (843) 1/14/16

Heffalump (938)
3/28/17

Hestia (889) 2/4/16

Robin (846) 1/31/15

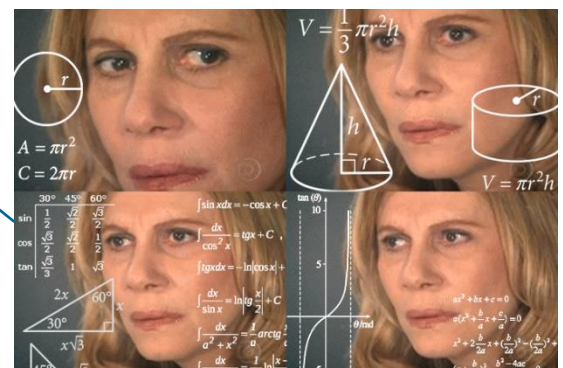
Honey (758) 1/25/13

Squirtle (936) 3/24/17



When the hopper is broken, so you have to shovel out 1600 pounds of corn silage

Trying to do mental math at five in the morning to figure out how much breakfast the heifers get



WHERE ARE THEY NOW ...

Written by Emily Gerraughty

CREAM is an experience we will remember and cherish for a lifetime. Not only are valuable skills developed and knowledge discovered, but friendships are forged with each new class that forms and graduates.

Chandler Stevens serves as a prime example of this. She was a senior Dairy Management major in the 2015-2016 class of CREAM and goes on to talk about how CREAM has truly influenced her life.

What were some of your favorite parts of CREAM and greatest takeaways?

“My absolute favorite part of CREAM was my class, without a doubt. We had a great group that instantly bonded and became more like a family. Actually, I think one of our longest classes was our very last one, because no one wanted to leave and have to say goodbye.

My biggest takeaway was learning to become a better leader. I was the Chair for our CREAM banquet, and I learned a tough lesson in that position- if you're going to lead, you have to be willing to delegate, and more importantly, communicate. I would also add that CREAM, in my opinion, is the best teacher there is for learning to work together as a team. It's difficult to put a group of people together with such varied levels of dairy experience and knowledge, with all different personality types and opinions, and work toward the same common goal- keeping our string of cows healthy, productive, and profitable. [However], as I mentioned before, one of the reasons I think my class was so successful was because we respected and supported one another. Those skills are SO important in the real world, especially in professional settings.”

Do you think CREAM influenced your life after graduation?

“Oh absolutely. The skills I gained in leadership and teamwork have probably stuck with me the most. In my position with the Holstein Association, I lead monthly meetings with all our department managers, which given their titles and years of experience, can be pretty intimidating. I credit CREAM with giving me the confidence and skills to work with a group that size and navigate through so many individual opinions and personalities.”

What were your experiences post-graduation from UNH?

“I had pretty much no plans after college- I only knew that I wanted to be in the dairy industry. My apartment lease was up so I was living on my best friend's couch. I milked cows part time in Greenland, NH, throughout college, and I wanted to continue doing that, with hopes it would turn into a full-time position. I also started milking at another farm in Concord. After a couple months, I realized that my situation at the time was never going to pay my student loans, so I moved back home to live with my parents in Massachusetts . I applied for a job at the Holstein Association, and was thankfully hired very quickly.”

Where are you today and what steps have you taken to get there?

"I am currently the Customer Engagement Manager for the Holstein Association USA, as well as our Regional Sales Representative for the Southeast region of the US. In the office as Customer Engagement Manager, I enjoy working with our key accounts, and several large herds around the country. As a Sales Rep, I cover all the states from the Virginias to Florida, so I get to travel quite a bit promoting the Association's products and services. I moved to Vermont shortly after being hired by Holstein, and currently live in Chester, Vermont, with my boyfriend, who is a part owner in a 500-cow dairy. The reason I mention my couch-surfing first few months after graduation is for those of you who might also be getting ready to graduate and feel like you don't have much of a plan or direction: I can promise you; you will figure it out. As far as what I did to get where I am now, I took chances, pushed myself out of my comfort zone, and learned from a lot of mistakes."

What advice would you give to current or future CREAMers?

"Not to sound like a broken record, but my advice would be to take chances and get out of your comfort zone. Also, don't ever be discouraged by being told 'No.' When I first sent my job application to Holstein, I received an email stating that the position had recently been filled and was now closed. However, less than a week later, I received another email from the woman that is now my boss. She was asking if I would still be interested in coming in for an interview. Two weeks later, I was hired for a brand-new position with the Association. I've found that usually when one door closes, another one opens. No matter what the situation is, whether it's a job or an internship opportunity or a position in your CREAM class, have a little faith in yourself and I can almost guarantee you will be surprised by what you can achieve."

THE CLEVER COW

K J J E Y D J T B Q Q Y Q C M
P B B L X Z U Z O Q H G I Q U
N O I T C U D O R P R T L H L
E X D T Z K W I T J O J Y X U
X M I S S R A M H N Z P P S C
Z X E W O E X N O L O I V H I
T R T Z H Q P O L T I B H C T
D T A Z S D Z R H I U Z S Q E
A G C C B D M E E W Z Y A Y R
S J I Q G C R A I D E D I A D
N P K P J M Q V G B N E T W Y
U I H E I F E R Z N E I L P E
E Z N A W O C W W R E G R G E
X P N O E S W B O C C T H I A
E V N W K B J A G V I T J Q U

Word Bank:

COW
DIET
HEIFER
HYPOTHERMIA
MAGNET
PRODUCTION
RETICULUM
RINDERPEST
ROZA
ZOOBOTIC

KEEPING UP WITH THE CREAMERS...



Name: Abigail Brisard

Year: Junior

Major: Biomedical Science: Medical and Veterinary Sciences

Cow: Lentil #843

Hometown: Lee, New Hampshire

Fun Fact: Abby lives on a small farm where they own sheep, goats, turkeys, pigs, and many chickens. She has a pet sheep named Nancy, who is a boy.



Name: Joseph Marcoux

Year: Senior

Major: Applied Animal Science

Cow: Bambi #878 †

Hometown: Northfield, New Hampshire

Fun Fact: Joe is hoping to pursue more educational opportunities related to his career goal of becoming a farm designer and eventual owning his own mixed species farm.



Name: Devyn Enwright

Year: Senior

Major: Biomedical Sciences: Medical and Veterinary Science

Cow: Robin #846

Hometown: Londonderry, New Hampshire

Fun Fact: Devyn's family currently has four horses, twenty chickens, a dog and two cats. In the past, she's even had turkeys, ducks, rabbits, gerbils, and frogs!



Name: Paige Barnes

Year: Junior

Major: Dairy Management

Cow: Hestia #889

Hometown: Hermon, Maine

Fun Fact: When Paige is not at school, she is working at a Stonyvale farm which houses a thousand milking cows, a hundred and fifty dry cows and almost eight hundred youngstock!



Name: Natalie Roth

Year: Junior

Major: Animal Science: Dairy Management

Cow: Kanga #883

Hometown: Longboat Key, Florida

Fun Fact: Both of Natalie's parents graduated from University of New Hampshire. Natalie used to show Holstein heifers with 4-H club.



Name: Courtney Rambush

Year: Junior

Major: Equine Science, Pre-Veterinary Track

Cow: Winnie #896 †

Hometown: East Hartland, Connecticut

Fun Fact: Courtney hopes to travel to Australia. She loves the beaches, the animals, the accents, and hopes to see the Australian Zoo.



Name: Emily Gerraughty

Year: Junior

Major: Biomedical Science: Medical and Veterinary Sciences

Cow: Squirtle #936

Hometown: Mansfield, Massachusetts

Fun Fact: Emily won an IROP (international research opportunities program) and will be studying giraffe behavior in Victoria Falls, Zimbabwe this summer.



Name: Amanda Patev

Year: Biomedical Science: Pre-Vet

Major: Junior

Cow: Serena #845 †

Hometown: Merrimack, New Hampshire

Fun Fact: This is Amanda's second bachelor's degree, her first one is in restaurant management.



Name: Kate Blood

Year: Junior

Major: Biomedical Science: Medical and Veterinary Sciences

Cow: Callie-Mae #857

Hometown: Ayer, Massachusetts

Fun Fact: Before coming to college, Kate was a cheerleader for fourteen years.

THE SUBCOMMITTEE SPOTLIGHT

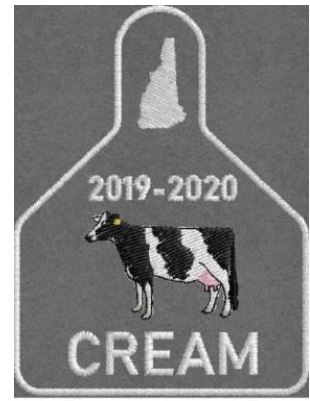
Herd Health Committee

Written by Alexia Gianoulis

Members: Alexia Gianoulis, Rachel Luddy, Olivia Rose, Jillian Broadhurst, Emily Gerraughty, Alexis Perfetto, Abby Brisard, Christian McKinnon, Paige Barnes, Devon Enwright, Amanda Patev, Alyssa Boyd, Nate Adams

Many CREAMers have ambitions to go to veterinary school or be involved with the dairy industry in the future. In the dairy industry, health is paralleled to the yield as well as quality of milk production. With this, CREAM allows us as undergraduate students to begin thinking what aspects of health impacts our main production goals. There are about thirteen students directly involved in the Herd Health subcommittee, however every CREAMer should be constantly thinking about how to better improve the wellbeing of our herd.

Being a part of Herd Health Subcommittee allows us to work directly with the herd's veterinarian, Dr. Elder, on just about anything we have questions on. Last semester a few students were lucky enough to watch Dr. Elder perform pregnancy checks using ultrasound on some of the cows. Herd health was put to the test a few months ago when one of the lactating cows named Russia (#830) developed an abscess on the top her back. Each day we assigned a member of herd health to clean the abscess as to reduce the incidence of infection. Three months later and the abscess is totally cleared up with only a scar left, while Russia is doing great! In addition, we are also in charge of spraying cows with iodine solution for udder rot (Zola, #2650), and will be contributing to hairy heel warts prevention and treatment in the future.



Apparel Committee

Written by Brianda Mendez

Members: Kate Blood, Corinna Coulton, Benjamin Kunkemueller, Joe Marcoux, Hannah Majewski, Brianda Mendez, Alexis Perfetto, and Courtney Rambush

As a member of the apparel subcommittee, our goal is to show our class pride as a group. This is a great way for everyone in the class to come together and show off their school spirit. Having class merchandise like stickers or t-shirts is a great way to give as a gift or fundraise for our yearly class banquet and team bonding activities we have throughout the year. The first piece of apparel we got as a class was a Carhartt jacket. This coat was a class winner. The reason we went with the Carhartt jacket is because it contains the warmest insulation linings. The jackets are water-repellent, it blocks wind, has ribbed cuffs and waistbands to keep body warmth inside, and also has an attached hood to help us stay warm during shifts. To get more involved with the class spirit, we decided to get our jackets embroidered with our cow numbers, our name and the new CREAM logo that was created by one of our CREAMers Hannah Majewski. Having this jacket makes a great conversation starter. It helps people recognize our school name when students wear it at any public place like a grocery store. It is also a great way to get students to recognize one another outside of the school environment and educate them about CREAM and what we do as a class. It is only the beginning and the apparel subcommittee has so many great ideas for the spring semester and we can't wait to share it with everyone.

DR. ELDER: HERD HEALTH PLAN EDITION

Written by Amanda Patev

On November 14th, we had UNH veterinarian Dr. Elder in to speak with the class about some things to consider when making a herd health plan and also common problems we see (and have been seeing in our herd!) on a dairy farm. One of the topics he covered was udder rot, also known as moist dermatitis. Throughout the year we have seen several cases of udder rot in our herd and the research herds which our Herd Health committee had been diligently taking care of. However, some of the cases had been particularly stubborn, so we wanted to see if he had any other suggestions for treatment. Dr. Elder had some great information to share. He said that udder rot is extremely common in first calf heifers due to the edema that occurs after calving. This edema causes the udder to press against the inside of the thigh, creating a warm, moist environment that bacteria loves to thrive. In older cows, udder rot is often caused by a laxity in the suspensory ligaments, which causes the udder to sag and again creating an ideal environment for bacteria to thrive in the udder cleft and groin area. In order to effectively treat udder rot, treatment needs to be consistent. He suggested the clean, dry, and apply method where you clean with soap (like chlorohexidine), dry the area very well, then apply an iodine-based substance with petroleum to allow gliding. If caught early and the lesion is superficial, then it could clear in less than a week with consistent treatment!

He also discussed another important topic with us in order to help us understand some of our Herd Health Plan better – vaccines. He started off by discussing how a vaccine protocol may vary from farm to farm depending on their needs. Then he talked about the different types of vaccines, what they do, and which ones we give at UNH. Here at the conventional dairy we give vaccines for: BVD, IBR, PI₃, BRSV, Shipping Fever, Leptospirosis, J5, Brucellosis, Barguard, and Calfguard. Shipping Fever Complex is given to decrease the likelihood of common cattle respiratory disease occurring. It vaccinates for IBR, BRSV, PI₃, and BVD. This is given initially at 4-6 months old and then bolstered later. Often a booster is given around the time of drying off to help decrease milk production and put antibodies into the colostrum. Leptospirosis is a bacterium that can be found in organic matter (like urine) from animals such as the opossum or rats, both of which have been seen around the barns at UNH. It causes an array of symptoms including abortion and infertility. The J5 vaccine is given to cows at dry off and contains a E. coli protein. It is given not to protect the cow, but the calf as the antibodies will be passed from mom to baby through the colostrum. Brucellosis is a vaccine that can only be given by a veterinarian. It often affects the reproductive tracts and causes abortion and infertility. It is also zoonotic and can affect humans similarly. New Hampshire is a brucellosis free state! We also give vaccines to calves after birth including Barguard and Calfguard, which protect against E. coli, and the coronavirus/rotavirus, all of which can cause calf scours.

Dr. Elder also went over heat detection so that we can better learn the signs of heat in order to let the barn staff know if a cow is in heat so she can be bred. Since we observe our cows walking up to the parlor and in the holding area daily, we are the first people who are going to notice signs of heat. Noticing subtle behaviors like increased movement or increased vocalization are the difference between getting our cows pregnant during this heat cycle or having to wait until the next one! We learned a lot from Dr. Elder, and we're really glad he could come and speak with us. Thank you Dr. Elder!

A STUDY IN PROBIOTICS

Written by Courtney Rambush, with help from Abby Brisard and Rachel Luddy

In early November of 2019, a research project at the Fairchild Dairy began underway using sixteen Holstein cows. Diana Reyes Gomez's project under the supervision of Dr. Andre Brito is based around the use of a probiotic called Cattle probiotic *Paenibacillus fortis*. The objective of the experiment is to reduce methane emissions from cattle. The experimental design is a Latin square. So, the 16 cows are randomly assigned to four treatments; control, probiotic, nitrate, and nitrate plus probiotic. The study consist of 4 periods. Each period is four weeks. The sixteen cows are randomly divided for each period and fed either a control diet or a Nitrate diet. Each diet contains Hay silage, lactating mineral, BergaFat, Protein Mix, Corn Silage, Energy Mix, and Blood Meal. The control diet contains Urea and Calcium Carbonate, while the other diet has Nitrate. The cows are fed in individual wooden feed tubs to track feed intake and keep the diets separate since the cows are randomly grouped each period. During the morning of the sample collection weeks, half of the cows are fed a small amount of the probiotic mixed with protein mix in rubber tubs, while the other cows are given protein mix to reinforce eating out of the tubs.

During sampling periods, blood is drawn, milk and rumen fluid are tested, and urine and feces are also collected. Using an advanced greenfeed machine, different gases emitted by the cows are measured, including methane and CO₂. After three weeks of that period, a washout period begins where the cows are all fed the same diet, which is much simpler and doesn't contain the added ingredients of Urea, Calcium carbonate and Nitrate. This is necessary to wash the treatment out of the cows' system.

The study ends February 20th of 2020 and then samples will be analyzed and sent to other companies to be analyzed as well. We are hoping for significant results and to see how the probiotic affected the 16 cows during each period.

WHERE DOES OUR MILK GO?

Written by Joseph Marcoux

On December 7, 2019 the current CREAM Class took a trip to the Hood® processing plant in Concord, New Hampshire. It was a memorable experience for our class and really gave a look in to what happens to the milk from our cows after it leaves the farm.

First a little bit about the Hood® company itself. It is a family owned operation and was founded in Massachusetts in 1846. Since their founding they have supplied the northeast with dairy products from local farmers. Recently they have branched out to suppling some form of products across the country. To keep their products local, they take milk from a 75-mile radius and a similar mission for their sellers as well. To do this they have sixteen plants located around the northeast. One even produces ice cream!

During the tour we could really see the passion that workers have for the industry. It was great to be able to see that the milk we produce at the Fairchild barn and other various farms are handled with as much care and pride as the farmers have.

We would like to give a special thanks to Ed and Bill for guiding the tours and educating us so much on the plant and the steps necessary turn the raw materials into a marketable product.

Sustainable Packaging

As with many companies, tasks are split up between plants to streamline production, one such example is the process of bottle making. While each of the plants produces some form of packing materials, each is still similar, and the process specifically had our class mesmerized.

Going from plastic film to bottle was impressive and the complex array of heating steps was captivating. It is efficient through the ability to process the bottles in bulk and recycle cutoff material for future production of bottles.

LightBlock Bottle®

In recent years the introduction of solid white plastic milk jugs have been introduced on to store shelves, and while it may look different, it also serves a purpose of maintaining milk quality. The bottle system is called LightBlock Bottle®, and it is designed not only to improve the taste and freshness, but also to improve the shelf life of the nutrients found within the milk. While this does not improve the overall shelf life, it does improve the nutrient uptake for the consumers.

Commitment to Quality

This assurance of high-quality milk starts at the moment the trucks arrive at the plant, then the long process of testing the milk begins. These tests check for the three main culprits the plant is concerned with; Temperature, Bacteria, and Antibiotics. If any of these is outside the acceptable range, that milk is refused for processing and then dumped.

Once the milk has passed all of the tests, it has seventy two hours to be processed into a marketable item. This process will include HTST pasteurization, filtration, and product packaging. This time period is crucial to produce a marketable product with a maximized shelf life.



*Thank you
Hood House for
the educational
experience that
was unlike any
other!*