CREAM HANDBOOK
2014-2015

CREAM will meet Tuesdays and Thursdays from 6-8 pm, with committee and business meetings on Tuesdays and Education meetings on Thursdays.

The faculty advisor is Dr. Drew Conroy
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NOTICE TO THE HELP

THE RULE to be observed in this stable at all times, toward the cattle, young and old, is that of patience and kindness. A man’s usefulness in a herd ceases at once when he loses his temper and bestows rough usage. Men must be patient. Cattle are not reasoning beings. Remember that this is a Home of Mothers. Treat each cow as a Mother should be treated. The giving of milk is a function of Motherhood; rough treatment lessons the flow. That injures me as well as the cow. Always keep these ideas in mind when dealing with my cattle. -W.D. Hoard

CREAM has a Website
http://www.unh.edu/cream
You will want to assign some people to update it!
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Introduction

Congratulations! As the CREAM class of 2014-2015, you have a challenging and exciting school year ahead of you! You will be in charge of milking, feeding and managing a herd of approximately 15-30 registered Holstein cattle. Collectively, you will be responsible for the feed costs, veterinary expenses, student labor, and several other costs associated with running a dairy operation. With careful decision-making and hard work at the years end, a profit can be achieved and an improved herd can be passed on to the next class of CREAM’ers.

CREAM is not a course where learning is structured by lecture and exams. You will find yourself driven to learn by a different motivation – the need to have information to make sound decisions. You will learn by doing. You cannot know everything. Learn as much as you can. Call on faculty, staff, dairy industry leaders and publications; these are at your disposal. Share what you’ve learned with the entire group. Good communication is basic to good teamwork.

Officially we will be using BlackBoard to communicate and for you to access other course materials. Please check it regularly. However, some classes have preferred to use a private Facebook group for ease of posting and checking schedules, minutes, etc.

As a CREAM member, your time commitment to the program will average 6-10-hours/week for each semester. The time listed above will be spent in weekly business meetings, committee work, chores and other related activities and assignments. Time management will be essential for you. Some of you will be taking other courses, as well as working a part time job and participating in other activities. Careful budgeting of your time will be key to ensuring that your CREAM and additional responsibilities are met.

The success of the CREAM program this semester will greatly depend on the ability of the group to work together as a whole. At times this may be difficult. Decision-making is seldom choosing between “right” or “wrong”, but is instead choosing the “best” decision from several “right” alternatives. Another challenge that you’ll face is problem solving. It’s easy to dwell on problems. Being positive and working towards a solution can help you and your classmates overcome many problems. Remember, you’re all on the same team and need to work toward a common goal! Effective teamwork depends upon sincere commitment, clear communications, thoughtful compromise and cooperation, as well as stepping up to lead committees and the CREAM class itself.

Keep in mind that CREAM is a business. You, as a CREAM member are responsible for running your business. The student advisors, faculty advisors and dairy center personnel are available to assist you – NOT to make decisions for you. CREAM is also a course. Other CREAM members, your faculty advisors and the dairy center personnel will evaluate your efforts.

Good luck to you as a member of 2014-2015 CREAM class! It will be one of your most memorable experiences at UNH!

What is CREAM
CREAM is a student-run cooperative in which 25-30 UNH students, with the help of advisors, operate and manage a small business – a registered Holstein dairy herd. The student group running the business changes completely in the fall semester of each year. The herd is passed on to the next group with the help of a transition team of student advisors, as well as dairy center personnel and faculty advisors. The business continues to evolve every year.

**The Mission**

The mission of CREAM is to provide students with a unique experiential learning model that will help them understand the following:

1. the applications of science to the management of a dairy herd
2. how to work with other team members in a cooperative venture
3. the work and decision-making skills required in production agriculture
4. how to manage and operate a small business.

Cooperatively running this dairy business with other students encourages each member to personally develop their leadership, communication, and group skills and may well be the most important benefit derived from being a CREAM’er.

**Goals**

CREAM will provide an experiential learning opportunity to University of New Hampshire Animal Science, Dairy Management, and Pre-veterinary students, as well as students from many other majors. Students will learn about production agriculture, and themselves, as they operate and manage the CREAM herd. The success of the CREAM program will ensure its continuance as well as to promote the class, the Animal Science/Dairy Management program, the College of Life Sciences and Agriculture and the University of New Hampshire.

**The Herd Mission**

With regard to the herd, CREAM’s mission is to provide a clean, comfortable environment for our cows and to manage them in such a way as to maintain a healthy, contented herd, which will produce high quality milk in an economical and sustainable manner. We will strive for genetic improvement in both type and production. In addition, we will maintain the herd so that it projects a positive image as we use it to provide public education about the dairy industry.

**Getting Started as a New CREAM Group**

**Forming Committees** – You will be assigned to one of the following committees, and you will
rotate amongst the committees during both semesters. The goal is to serve with everyone else in
the class at some time during the school year. This will require thought and care in scheduling.

COMMITTEE RESPONSIBILITIES
During the academic year, Creamers will be members of 5 committees. The committees include
Breeding, Finances, Education and Planning, Production Management, and Farm Facilities
and Maintenance. The committees rotate members, so everyone gets a chance to be part of each
committee. One or two members from each committee will remain on the same committee for a
few extra weeks to aid in ensuring a smooth transition between groups. The committees can then
continue to work towards the same goals with a new group of people, while having minimal
setbacks. Each committee will have an advisor who will work for them and attend their
committee meetings.

Production Management Committee – The production committee will meet to discuss our
cows, their production, health and reproductive issues with a faculty and farm advisor. This
committee and its “herdsman” duties often provide students with the most hands-on cow
experience. It is important for this committee to monitor feed intake and milk production on each
of the individual cows so that production can be maximized. The health of the cow is largely
dependent upon meeting her nutritional requirements and comfort.

This group will rotate the responsibility of herdsperson. This assigned person will be the eyes
and ears of the committee and need to report what they have done and seen in any given week. In
addition, all changes and major decisions will be brought to the CREAM Business Meeting, so
that everyone will have a chance to participate in the larger production management and related
decisions.

In addition, this committee is responsible for overseeing the operation of the milking system, the
milking procedures, and record keeping. There are computer programs to assist you with these.
We have many systems of record keeping and these need to be utilized. Being able to read
“Dairy One” records aids in reproductive management, mastitis control and udder health.

At any given time the production committee should know:
1) How many heifers and cows we have
2) What the cow milk production average is
3) What the butterfat and protein levels are
4) How we are doing with fresh cows
5) What the major health issues are
6) What the cows are eating and how much
7) How everyone is doing with milking and feeding the cows
8) What we need to improve production
9) Monitor body condition scores and environmental scores

This group will formulate solutions to these cow challenges, as well as discuss nutrition, diets, veterinary issues and other topics related to maintaining our cows and heifers in tip top shape. When feed or comfort is in inadequate, milk production drops and cows have health problems. Finally, this group needs to summarize their findings weekly in order to share it with the rest of the group.

Additional Production Management Activities should include:

Feeding:
- Is the ration economical and is it maintaining high production and good health?
- Communicate with Finance group concerning feed sheets, herd diet composition and amount fed, and feed costs for the herd.

Milking/Herd Health:
- Are the cows healthy?
- Which cows are not eating?
- Which cows should the veterinarian check? For what?
- What are the veterinarian recommendations? Who is going to carry them out?
- Is everyone familiar with the milking procedure?
- Is there a mastitis problem?
- How should health records be kept?
- Daily herdsman responsibilities amongst the group

It is important for at least one member of this Production Committee to be available during routine veterinary checks (every other week), especially if one of the herdspersons is unable to attend. The individual health of the cows should be monitored daily. Production Management Committee members should be particularly concerned with: calving, mastitis treatment, milk fever, and other ailments.

Members should be alert to cows that are not eating properly or are showing extreme weight loss or gain. Another aspect of cow health that needs attention is hoof trimming and the use of
footbaths. This committee should keep a list of cows whose hooves need trimming or cows that are limping and need attention. The entire herd should be exposed to the footbath periodically as routine maintenance of good herd health.

The committee should be aware of what drugs are available for cows with mastitis, milk fever, edema, sore feet, etc., and the withholding times (if any) that are associated with each of them.

**Dry cows:** Cows need approximately a two month dry period before they begin their next lactation. This is for involution of the udder. It is the Production Management Committee’s responsibility to inform other CREAM members of the cows that are scheduled to be dried off. It is also the responsibility of the committee to inform the group when dry cows are reentering the herd.

### Herdsperson Duties

While every CREAM’er should know the status of the cows in the herd, every week the production committee is in charge of overseeing the herd, and taking care of any problems. The herdsperson(s) are the eyes for the group and have to learn to be observant and watch out for the cows. You would need to be on top of the daily activities at the barn, as well as be in close contact with the manager in monitoring the herd and taking the appropriate action when needed. The status of each cow must be monitored daily. The herdsperson will also be in close contact with the students doing chores to communicate important information via message boards. The herdsperson should also be certain that all daily actions are recorded appropriately and should report all concerns or recommended changes to the rest the Production Committee members.

It is up to the committee to determine who comes which day, but one of you must come do herdsperson every day. When acting as herdsperson, if you have ANY questions, find any of the full time barn staff and ask for help.

What is Cow Comfort? What Should You Take Note of?

- Cud chewing
- Percent of herd asleep
• Time at the bunk eating
• Time at the bunk not eating
• Time in the holding area
  • Time resting
• Time standing around
  • Sore feet
• Waiting for a drink
• Nervousness
• Do they “look good”? 
  • Puffy hocks
• Adequate Ventilation

Ventilation – Inadequate ventilation can lead to health problems
  Use your nose: Make sure the air does not smell stale or have a strong ammonia odor
  Check cows for open mouthed breathing, coughing or nasal discharge
  Check for cobwebs – an indicator of poor air flow
  Check for excessive condensations and moisture damage
  Run your fingers through the haircoat of cows, the cows hair should be dry

Bedding – Wet is Bad and Dry is Good !!!

• Their beds should be clean enough that you would be willing to put a sleeping bag in their stall.
• Examine cows for dirty udders, tails, switches and hind quarters
• Keep your cow’s stalls clean

Herdsperson’s Daily Duties

• Print yesterday’s milk weights and compare them with the day before.
  • Note any cows that have drastically changed milk weights. Fluctuating milk weights can be an indication of the health of the cow.
• Check ALL whiteboards (CREAM office, locker room, milk room), with the calendar in the herdsperson’s binder and with other herdsperson for any sick cows, or cows that need to be looked at or moved.
  • Push up and redistribute feed. Notice if any cows are not eating, and look at them for other signs of illness (unresponsive, sunken in eyes etc)
  • Check who’s resting, eating or chewing. This should be done before chores or at least an hour afterwards, and not while the herd is being worked with.
    • At any given time, 1/3-1/2 of the herd should be chewing their cud. This is an indication of the forage to concentrate ratio. If you notice any thing irregular, make note of it, and tell management.
• Check manure consistency for every cow with manure in her stall.
  • The consistency is an indication of diet and health of the cow.
• Check all cows for discharge
  • Bloody discharge is indicative of a cow having been in heat within the past 1-3 days, and should be noted, especially on cows that have recently been bred. It is also common on cows that have recently calved.
Abnormal discharges (thick/white discharge, brown smelly discharge, and thin clear discharge on a cow that is supposedly pregnant are all abnormal), especially in fresh cows could mean the cow is ill, and should be noted. If an abnormal discharge needs to be looked at by a farm staff member, you need to know the cow’s reproductive status (ie, fresh, bred, pregnant) in order to try to determine what the problem might be.

Check cows in maternity that are close to calving. Check for signs of calving, and inform the proper person (farm manager, full time staff, or researcher) if necessary.

Check on calves and hutches. Make note of any that have diarrhea or consistent coughs.

After having checked all the cows, find one of the full time staff and you need to discuss any medications cows are receiving or problems animals are experiencing. Tell the staff what you’ve noticed is wrong with your cows, and get their input and permission before you can proceed to treat any cows. Then proceed and treat any necessary cows exactly as directed. Also treat any cows that are scheduled for shots, as indicated on the herdsperson's calendar, again after checking with farm staff.

**Record any treatment in the medicine room in the notebook for herd health records!**

- Keep the calendar up to date, and fill in all necessary shots/pills when starting a cow on a protocol.
- Scrape behind cows
- Check ORTS from previous day (should be around 5-10% of total food fed) and adjust feed weights as needed

**Other Herdsperson Duties**

Move cows into and out of the string at calving and dry off. Check with one of the full time staff before moving a cow into or out of a maternity pen.

Vet checks occur every other week. The information that the vet provides about a certain cow should be recorded in the Farm Computer System (talk to the farm manager). The sheet should then be placed in the black binder under vet check. The herdsperson will notify Jon Whitehouse about what the vet suggested for each cow, so that will be taken care of.

*No one is required to administer medications if they are uncomfortable with doing so. At the beginning of doing herdsperson, everyone will be taught to administer medications, and the farm staff will answer any questions you may have. However if you are uncomfortable or uncertain about anything health related, please talk to Jon Whitehouse.

**Breeding Committee.** This committee is responsible for the genetic improvement and reproductive performance of the herd. The main job is to select sires for our cows and then to make sure they are bred at the right time. This is done by evaluating the cows’ strengths and weaknesses (information needed in picking mating sires) and then monitoring the heat status of our cows (and informing the rest of the group).
The Breeding Committee also works in conjunction with the production committee in making a list of possible cull candidates as it becomes necessary and may be involved with planning breeding program protocols and following through with them, including

How we are doing with getting cows bred on time
How many animals are open, bred, pregnant or cystic, etc.

The sires, or bulls, are selected to meet the breeding goals of CREAM. The main goal is to produce a cow that is balanced in type and production. “We want productive cows that are long-lived and free of health problems.”

Genetic improvement of the herd will be the most important role of this committee. We want to ensure that the cows will give birth to a calf that is superior to its mother. This is achieved by considering the goals of the herd as well as the goals of the individual cows. The herd goals are well attached udders, good feet and legs, good overall type, and high milk production. Individual sires vary for each cow and will be determined based on strengths and weaknesses of the cow. In the past, the UNH herd has been bred for production, and little emphasis was put on type. We are now trying to breed more for type. However, it will take many generations for the herd to become a “good looking” group of cows again, without sacrificing the production value that we now have.

Evaluating individual cows is also necessary when deciding which cows to cull. When it is necessary to formulate a cull list many factors are considered, but the two main reasons for which a cow may be culled are poor production and/or poor reproductive ability. Many other factors go into deciding to cull a specific cow, which is why it is usually a class decision.

Examples of Weekly Breeding Committee expectations
- Which sires have been chosen?
- Which sires should be used for which cows and why?
- Which cows need to be bred?
- How do we identify cows in heat?
- Which cows and heifers are pregnant and when are they due?
- Which cows should be culled?

In order to inform the entire group of the heat status of the animals, a weekly heat sheet is
drafted. This allows the group, and other barn staff members, to identify those cows that should be watched for signs of heat. The cow’s numbers, dates they may come into heat, and the bulls that they should be bred to are all put onto the heat sheet. The sheet contains two parts: those cows that should be bred upon signs of heat, and those that should not. If the “not too breed cows” show signs of heat, the date should be recorded on the heat expectancy charts in the CREAM office and by the parlor.

Finance and Scheduling Committee - The Finance Committee is in charge of all of the expenses that CREAM incurs, as well as the income. The Finance Committee is also in charge of keeping the records up to date. Everything is to be kept track of and is usually recorded in more than one place.

Milk checks come in twice a month. They need to be broken down, to find out how much the CREAM herd has earned. These earnings must be recorded, and reported to the whole group which your advisors will help you with.

The responsibility of this group is to gather the veterinary costs each week to the CREAM herd.

There is a great deal of paperwork that comes to this committee. Often the farm manager leaves important papers on the desk in the CREAM mail tray. Your office manager will either then distribute them to proper folders or leave them in the mail tray for you. Each one of the papers will have a title on it. You need to file these. Each one of the folders is labeled as to what is in it. Try your best to keep these in order for easy access when you are looking for that information.
The farm manager can also photocopy/print treatment/breeding sheets which record cow treatment records. The program is a mix of CREAM cows as well as cows from the regular herd. Jon can print the reports we need for each committee. In fact, one or two reports may be important for a number of committees. Let’s share them in the CREAM office.

There are also certain charges, such as rent on CREAM heifers, lactating cows and dry cows which you must calculate based on the number of animals in the herd. The cost of cow diets also has to be accounted for. This has been calculated a number of ways, and you are welcome to develop spreadsheets to help make these calculations. CREAM rent is paid once per month. Feed, medical, and other expenses are paid weekly.

Tracking the cost of feeds and diets and the amount fed to the cows is critical. This is done on a spreadsheet and must be updated as prices change. Failure to do so has led to major problems in accurately tracking expenses for the CREAM Class.

This group will schedule all CREAM shifts and weekend shifts on a month by month basis unless another person is designated by the group. This will be reported through the Vice President. **The Scheduler will be responsible for posting the sign up sheet, emailing it, and making sure people know when they have to work.**

**Examples of Expectations from Weekly Finance Meetings**
- Keep an up-to-date record of expenses and income.
- Calculate income from milk check
- Review expenses
- Track diet composition, amounts fed, feed prices and total costs for the herd.
- Plan for purchases with other committees.
- Review and track all sales/transfers of animals
- Find ways to enhance income with other committees.

**Education and Planning Committee** – This group will be in charge of all event planning, service activities, as well as regularly scheduled speakers, education sessions and field trips. The will also follow-up by thanking speakers, and keeping the rest of the CREAM group informed of upcoming activities.
Examples of Expectations for the Planning and Education

- Coordinate education, outreach and service activities.
- Make sure Drew Conroy and the CREAM group approves these activities.
- Early on, you will work with your student advisors to ensure you receive the critical training you need to take over the management of the herd.
- As the student advisors finish their job, you will take on full responsibility for this committee in organizing all speakers, educational programs, service and social activities for the semester.
- Organizing and delegating responsibilities for field trips, annual newsletters, website updates and the annual banquet amongst other activities.

Farm Facilities and Maintenance Committee - This committee is responsible for the facilities, and gets input from the farm manager each week on what needs to be done. In addition, the group will make sure the CREAM facilities (including calf, heifer, and dry cow areas) are kept clean and neat. In addition, tracking condition and maintenance of lights, trainers, stalls, cow signs, cleanliness of window sills and walls, along with scraping behind cows and adding bedding as needed. This committee may also have to take on the responsibility of cleaning the
changing rooms and other areas in the barn.

Finally, this committee will be in charge of monitoring feed quality, dry matter and particle separation, as well as silo management. This may include taking samples and running dry matters on them in the lab, reporting them to the class and tracking this over time.

**CREAM Officers**

The primary job of the officers is to preside over the meetings and the program and to ensure that they run smoothly. However, care should be taken so that officers do not dominate the decision-making or discussion process. Every member must play an active role- CREAM discourages people from staying on the outskirts while others do the thinking and decision-making. It’s not enough just to do chores and that which is expected of you. You must actively participate in the group process! Two elections will be held, the first being in the 4th or 5th week of the first semester and the second at the beginning of the second semester. An officer may be elected to the same or a different position each semester.

**President:** Presides over the meetings, sets the agenda, communicates with advisors and committee chairs, ensures that committees are active, calls executive meetings when needed, and is the spokesperson for CREAM. Most often the president runs the meetings and tries to do this in a neutral manner. Over time it has been the experience of CREAM that understanding and adopting parliamentary procedures is very helpful.

**Vice-president:** Supervises and/or communicates the scheduling of chores and herdspersons
shifts (this includes tracking missed shifts and reporting them to the president, faculty advisors and the farm manager), fills in for the president in his/her absence, and assists the president as needed (most often with helping to set the agenda).

**Secretary:** Keeps the minutes of business meetings and distributes them to the class (in a timely manner) and is in charge of all correspondence.

**Office Manager/Librarian:** Maintains the CREAM Office, organizes all CREAM’s educational materials and its availability, recommends material to be used and new material to be purchased.

Other jobs may include a website manager and newsletter editor. Although this could also be done by a subcommittee.

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**Cooperative Real Education in Agriculture Management (CREAM)**

**Animal Science 698/Applied Animal Science 275**

**Course Grading and Evaluation**

CREAM’ers will receive 4 credits each semester for a total of 8 credits. You are evaluated on your participation in running your business and in the learning that you accomplish as a team member. You will receive one grade for the year, which you will receive at the end of the school year. This means that you will get an IA on your report card for the first semester. This simply means it is a continuing course that will receive its grade at the end of the school year.

This grading system serves several functions. First it allows you to work toward understanding the course requirements before you receive your official grade. This also allows you to make improvements in areas that might be critically evaluated by peers or your advisors as lacking in the first semester. Finally, as CREAM is a year-long class, you cannot leave part way through without being penalized.

Student's grades will be derived from the following:

**15% from student assignments:** This includes the journal reports, committee reports, group activities, participation in all aspects of the program, stepping up to take on responsibilities (and following through to see their completion), as well as quizzes (which occur early in the semester to get you up to speed on terms and what is in this handbook).

Several times during the semester, a 2 page journal report will be due. The primary function of the journal is a self evaluation of your work and activities in the course. Included in this report could be whatever you have learned recently, opinions about CREAM, activities that you attended, committee work, chores, etc. Also included can be suggestions on how the group may want to do things differently. These reports have helped shape the CREAM course. We call these journal reports, because it is recommended that you keep a record what you have learned, any questions you have, and
what recommendations you have for the program. Keeping notes or a journal will make the report easier to write when the time comes. The journal will be graded in part on grammar, so random notes and 2 page paragraphs are not the objective of this assignment.

60% from peer evaluations. In CREAM, students are given responsibility for running a business. The primary component of your grade comes from how you are evaluated by your business partners. Evaluating your peers will be difficult at first. You must try to leave personalities out of your evaluations and base them on performance, participation and the willingness of classmate to work for the good of the group and herd. The list of what is expected of each CREAM member (page 15) is a good place to start in your evaluations. At least twice per semester you will be expected to assign grades to your fellow CREAM’ers, as well as provide an explanation of why you assigned them their grade. You are asked to be honest and offer constructive criticism. These evaluations are to be realistic and thoughtful. Summaries of your individual performance, based on peer evaluation will be shared with each of you. The evaluators will not be specifically identified, however the way you write the evaluations will determine whether or not you can be identified.

25% will come from faculty and farm staff: This part of your grade is based on observations and interactions faculty, the farm staff and the teaching assistant have with you over the course of the year. You will be evaluated on your work in committees, your efforts as herdsperson, your timeliness and accountability for chores, and your willingness to lead others toward the goals of the class. You will also be graded on the end of the year CREAM report and how well you served on committees. Your performance and improvements in written assignments, quizzes, and jobs you have volunteered for will also be part of this evaluation. In addition, part of the grading will be based on our evaluation of your group as a whole in taking care of the animals, maintaining records, and keeping the CREAM cows and facilities clean and neat. Dr. Conroy will meet with each CREAM’er individually at least twice each semester to discuss peer evaluations and progress that you are making, including faculty and staff grading.
What Is Expected of Each CREAM Member? -
This is what you will be graded on by staff, peers and faculty

Chores:
- Be punctual
- Be responsible
- Do a quality job
- Communicate Effectively with others
- Be considerate of others
- Be observant
- Trouble shoot
- Work through problems..don’t just complain
- Go above and beyond what is expected of you
- Help one another (two sets of hands are better than one!)
- Seek out other CREAM or farm personnel when you have questions or something is not working correctly
- Educate yourself – many handbooks, the Hoard’s Dairyman books, and videos are available to you in the CREAM office – use them

Business Meetings:
- Be punctual
- Actively participate
- Complete committee work accurately and thoroughly
- Present recommendations to the group with justification
- Give constructive criticism courteously
- Listen attentively
- Ask questions
- **Show Initiative**
- Go above and beyond the basic requirements of the course
- Volunteer for things

Committee Work:
• Attend meetings regularly
• Carry out committee responsibilities
• Identify and work through problems promptly
• Show initiative
• Go above and beyond the basic requirements of the course
• Volunteer
• Ask questions
• Read up on topics being discussed
• Actively participate
• Use resources available to you

**Other General Student Responsibilities**

**Dress Code**
This barn is a public facility, please dress accordingly! Read the farm dress code. We have had problems with this, and even had students graded lower by their peers for purposely ignoring the dress-code.
Workers are required to wear closed-toed shoes at all times. Sturdy work boots or shoes are required and necessary in the barn.

**Personal Conduct**

• This is a public facility with many visitors, your conduct should reflect this at all times.

• All animals are to be treated and handled humanely. Anyone found mistreating or mishandling any animal would be subject to dismissal.

• Foul language is not acceptable at any time.

• Communicate with your fellow CREAM’ers and regular herd employees; things will go a lot smoother if you help each other out.

• Discipline is the responsibility of management and not students. If you are having a problem with another student or employee, please talk to management.

• Smoking is not allowed in any part of the facility.

**Barn Rules**

The following should not be put in gutters. They will plug the manure pump, damage the manure pump, and anger the full-time employee who must fix it.

a. 1. bailing twine
b. 2. long hay
c. 3. placentas
d. 4. sticks, stones, or any other solid objects
e. 5. hair from trimming cow tails

Thermostats in the barn are not to be changed at any time while working in the barn.
Laundry facilities and locker rooms are there for your use. Please respect the privilege and use them properly or the privilege may be lost. Laundry facilities are for chore clothes only.

**SAFETY IS A TOP PRIORITY –**

You all have to fill out a UNH Medical History & Risk Assessment Questionaire for Handling Vertebrate Animals and/or unfixed Vertebrate Animal Tissues!

If you do not you will not be able to work with the animals, which essentially means you cannot adequately participate in the course

**ASK FOR HELP IF YOU ARE UNSURE OF ANYTHING**

If you are injured at all on the job, please see farm manager and fill out a University injury report form.

Hearing protection, eye protection, and respirator masks are available for you to use if you so desire.

Visitors, parents, children and prospective students are not supervised, trained or paid UNH employees. They are also not students officially in a UNH course dealing with dairy cattle. They have not had the training CREAM students or UNH employees have had, nor are they covered under the same level of liability or workman’s compensation.

With this in mind, anyone who is not in a class or working officially on a shift at the dairy farm is not allowed to do work at the farm, or work with the cattle. CREAM students who do not follow this rule will have their grade affected accordingly. Students who are shadowing and do not follow this rule jeopardize their chances of being accepted into the course.

The CREAM class uses “Shadowing” for prospective students to follow a current CREAM student through a chore. This allows the student interested in taking CREAM to SEE first-hand how the shift works, to have a chance to be in the farm environment and make a decision based on this experience if they want to commit to CREAM for a year.

**Important Safety Precautions Around Cattle**

Exercise extra caution when cows are in heat, especially when tying them or the ones beside of them. They can be very difficult to handle and may attempt to mount you. Seek help from experienced staff in handling these animals. In addition, cattle sometimes recognize inexperienced people and try to take advantage of them. This can create a dangerous situation, if you are not constantly aware of the animals around you. Be alert at all times when in the
presence of cattle.

Caution should be used around heifers just moved from free stalls and with any newly purchased animals. They may be nervous and unaccustomed to being handled.

If you have a recurring problem with an aggressive animal, make sure to bring it to the attention of the farm manager. We will immediately take steps to try to remedy the situation. We have found it is better to get rid of an aggressive cow than to risk personal injury.

**Single-animal Safety** - Cattle are creatures of habit. They prefer the comfort and safety of the herd to being isolated. Therefore, when you try to sort one off from the group, similar to how predators work, she will try to escape. Here are some suggestions:

- If another cow wants to go with the cow you are trying to sort off, let her. You can easily put the second animal through the chute. Her presence will keep the first animal calm.
- If you do get a single animal sorted off and she makes a dash to escape and rejoin the herd, do not step in front of her. She would rather run you over than be isolated.

**Fresh-cow Safety** - Newly-fresh cows have strong maternal instincts, including the need to protect their young.

- Never place yourself between a fresh cow and her calf.
- Do not attempt to remove the calf from the pen alone. Use a partner or do so while the cow is in the parlor.
- Depending on the individual cow, she could interpret your presence as a threat to her calf, similar to how she would interpret a predator if the calf were born in pasture. When working with or feeding the calf, watch the cow for these signs of aggression:
  - Lowered head, aroused sense of awareness
  - Eyes looking directly at you.

**Other signs of Aggressive Cattle:**

It is often tempting to assume that cows are big pets, especially your assigned CREAM cow. However, cattle are herd animals who establish a pecking order in the “herd”. Working closely with the herd, you actually become part of their herd. Even the calmest cows will test you, to see where they stand in a pecking order against you. This test might be as simple as ignoring your request, or as aggressive as putting their head down and pushing you into the wall. Any animals who push you with their head, squeeze you into a wall, or overrun you, are ignoring you and showing their dominance over you.

Many of you may have seen the television show the dog whisperer. I found the show fascinating, because cattle like dogs will take advantage of people and dominate them, in very subtle ways. Our goal is to work calmly with cattle, but
never let them realize their size or strength. We will spend time learning about cow behavior in the first week of class. Understanding these animals is critical. Cattle are observant and learn to identify individual people. They learn who they can intimidate and who they cannot. They take advantage of those they can intimidate. We will discuss strategies and practice learning to safely handle and deal with all cattle.

**FEEDING – WHAT AND WHY?**

**Feeding:** Another aspect of CREAM involves feeding the cows. One challenge with feeding is to balance the cows’ rations for the proper amounts of protein and energy. However, fiber intake must also be considered. “Balancing” a ration means to compare the nutrient requirements of the cow with nutrients in the feed and insuring that they are equivalent. The production committee will have the major responsibilities here.

A cow’s nutrient requirements are based on her milk production, fat%, age, and stage of lactation. In building a ration to meet the nutrient requirements, we begin with high quality roughages as our base. This is less expensive and also required by the cow. Grain or concentrate is then added to meet the nutrient requirements. This diet is then mixed together as a TMR or Total Mixed Ration. The TMR is balanced for a certain level of production (i.e. 90 pounds of milk/day).

One concern associated with dairy nutrition is rumen acidosis. This occurs when the rumen becomes too acidic (too much concentrate and not enough forage). A symptom of this in an otherwise healthy cow is a fat/protein inversion (the protein % is higher than the fat % in the cow’s milk). Acidosis can lead to larger problems such as rumen ulcers, laminitis of the hooves, and severe ketosis that requires treatment with dextrose, vitamins, and minerals. If the cow refuses to eat, she is also at risk of getting a D.A. (displaced abomasum), which requires surgery to correct.

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>INGREDIENT</th>
<th>COMPONENTS</th>
<th>NUTRITIONAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bovamine</td>
<td>Blood meal (poultry),</td>
<td>Protein</td>
</tr>
<tr>
<td></td>
<td></td>
<td>feather meal,</td>
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<td></td>
<td></td>
<td>smartamine</td>
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<tr>
<td></td>
<td></td>
<td>(amino acids)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Energy Mix</td>
<td>Beet and Citrus Pulp</td>
<td>Energy</td>
</tr>
<tr>
<td>5</td>
<td>Haycrop Silage</td>
<td></td>
<td>Fiber, protein</td>
</tr>
<tr>
<td>6</td>
<td>Mineral 4P</td>
<td></td>
<td>Vitamins/Minerals</td>
</tr>
<tr>
<td>7</td>
<td>Berga-Fat</td>
<td>Fatty acids</td>
<td>Bypass fat (energy)</td>
</tr>
</tbody>
</table>
Understanding The Five Basic Nutrients in Feed

1. **Water**
   - Transports nutrients
   - Regulates body temperature
   - Chemical reactions (acts as a reactant)
   - Maintains shape of body cells

2. **Energy Feeds** - Corn Silage, Beet and Citrus Pulp, & Bergafat:

   **Carbohydrates:** The major source of energy in dairy cows. Between 50 and 80% of dry matter in forages and grains is carbohydrates. There are three major classes:
   
   a. Simple sugars (glucose, fructose)
      
      Simple sugars are products of photosynthesis by plants. They are within the cells and are building blocks of more complex carbohydrates. They are soluble in water which makes them readily available to rumen microbes.

   b. Storage carbohydrates (starch)
      
      Starch is the main form of storage carbohydrates in plants. Starch is a granule composed of many chains of glucose. It is the main component of corn grains and is insoluble in water. Starch in corn grain is fairly resistant to microbial degradation. Starch is almost completely digested by rumen microbes or digestive enzymes.

   c. Structural and fibrous carbohydrates
      
      Cellulose/hemicellulose – The rumen contains microbes that break or extract glucose from cellulose.

3. **Lipids:** A small amount of lipids are found in seeds. Typical diets of adult ruminants contain no more than 3-5% lipids (on dry matter basis). They contain 2.25 times more energy than carbohydrates. Excess fat (if lipids increased to >8% of dry matter), will decrease feed intake, depress fat and protein content of milk, and cause diarrhea.
Proteins: Composed of one or several long chains of amino acids bound together. Feed proteins average 16% nitrogen. The carbon skeleton contains carbon, hydrogen and oxygen, which yield energy like carbohydrates and lipids. The average gross energy content for proteins is 5.1 kcal/g. The combustion of the carbon skeleton yields 4.1 kcal because 1.0 kcal is used to excrete nitrogen in the urine.

4. Bovamine, Hay Crop Silage, Soy Bean Meal:
   These ingredients are all sources of protein. Proteins serve as an amino acid source. There are multiple chains of amino acids bound by sulfur bridges. Proteins in grains are less soluble and more resistant to microbial degradation in the rumen, than proteins in forages. Enzymes, hormones and antibodies have proteins as their central structure. Proteins control/regulate chemical reactions in the body. They are the major component of muscle tissue. Fibrous proteins play a protective/structural role (hair and hoof) and some have nutritive value (milk and meat).

5. Mineral Mix:
   Minerals: Minerals are inorganic elements found as inorganic salts (calcium carbonate) or bound to organic compound (sulfur, phosphorus). They are broken down into macro/micro minerals (differ in quantity of mineral required). Macro – required at level between 0.2 and 1.0% of ration dry matter. Micro – required at level between 0.001 and 0.05% ration dry matter. Minerals are readily soluble in water, (i.e. sodium, potassium) are not stored and need to be supplied by the diet.
   Macro minerals: Calcium, phosphorus, magnesium, salt (sodium and chlorine), potassium and sulfur.
   Micro minerals: Cobalt, copper, iodine, manganese, molybdenum, selenium and zinc.

6. Vitamins: Organic compounds needed in small amounts. Vitamins participate in chemical reactions and are classified into two groups: water soluble (nine B vitamins and vitamin C) and fat-soluble (vitamin A, D2, D3, E and K). Fat-soluble vitamins are stored in the lipid part of feed (in animals, they are stored in the liver and adipose tissues). Water-soluble vitamins are not stored in the tissues and need to be replenished by the diet.

**FRESH COW PROTOCOL**

A cow is considered fresh "from the day she gives birth to approximately 14 DIM" (unless she's sick, and then she should be monitored until she's recovered).

*If during a shift a cow is calving and you’re not sure what to do, alert Jon Whitehouse, John Weeks, The CREAM T.A., a student worker who lives at the farm, or if no one is around call Jon Whitehouse!* When a cow is calving, the calf need not be pulled unless the calf is too large and the cow needs you to provide traction. In this case, calving chains can be used which are attached to the forefeet above the dewclaw. If a calf is coming out in a normal presentation, the two front feet and nose will be visible. If the nose is not visible you may have to reach into the cow in order to determine the position of the calf. Be sure to sanitize your hand and arm before reaching inside the animal. When pulling the calf it is important to pull when the cow pushes. This prevents tearing of the uterus that could lead to uterine infection and breeding. 
problems later on. Once the head of the calf is out, it is imperative that the rest of the calf be pulled out because at this point the placental membranes have broken. Once the calf is out, ensure that it is breathing normally. If not, you may need to clean its mouth out with your hand, gently push on its stomach, tickle its nostril with a piece of straw, or hold it upside down to allow the fluid to run out of its lungs. If the calf is doing well, focus your attention on mom by offering her a bucket of warm water and encouraging her to stand. Cows need to stand soon after calving in order to prevent pinched nerves.

The cow should expel the afterbirth a day after calving. If she does not “clean”, she may have a retained placenta and the veterinarian should be called. If after calving a cow refuses to eat and appears to be dull and listless, she may have “milk fever”. If you see these signs, alert the assistant manager so that they can administer calcium intravenously as soon as possible.

After a cow calves do the following: Call Kayla Aragona Immediately – 603-455-0675, as she is doing research on calves during the Fall 2014 semester. (if CREAM students are not around, barn staff will take care of it).

After a calf is born:

• Give the cow a couple of buckets of warm water (not hot or cold)
• Give the cow a flake of second crop hay from the calf barn
• Dip the calf’s navel in iodine and give only heifer calves 2 oral vaccinations (These are Barguard and Calf Guard)
• Administer 5cc of oxytocin to the cow – record this in the medical treatment log book
• Bulls will need to be bottle fed colostrum replacer as soon as possible after calving. If the calf is a heifer, you will need to thaw out and warm up the frozen, high quality colostrum kept in the storage room freezer. If any questions, talk to farm manager.
• Make sure the necessary info about the calf and dam is recorded on the white board next to the pens

Things everyone should be aware of on fresh cows:

• Normal eating/cud chewing. (If a cow is not eating a DA can develop. If you suspect a DA, consult the sick cow protocol and alert a member of the full time farm staff.
  • Feeding dry hay can stimulate eating/cud chewing.)
• Check temperatures for 10 days post calving – Normal temp is 101.5
• Passage of the placenta. (If the placenta is retained, a cow can develop metritis. If you suspect a cow has metritis, consult the sick cow protocol and alert a member of the full-time farm staff.)
• Rapid weight loss. (Overweight cows - BCS > 4 - and underweight cows - BCS < 2 - can be predisposed to ketosis. If you suspect ketosis, consult the sick cow protocol and alert a member of the full time farm staff.) Check for ketosis for 10 days, cows are generally slightly ketotic the 1st month
• Normal passage of manure.
• Any signs of:
  • lethargy
  • dehydration
  • abnormal walking/balance
(If the cow is acting abnormally, make a note in the herdsperson book and put a note on
Tell the people coordinating the bi-weekly vet checks any cow that is ill and needs to be checked for health reasons. Check with the vet check people after vet check for the results and to see what drugs the vet wants to have given.

**** Make a copy of the Vet Check Information for Jon Whitehouse to enter into his computer ***

Make a report at the weekly business meetings as to the status of the herd and individual cows

**Medical Terminology**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Purpose</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystorelin (GNRH)</td>
<td>Regress follicular cycts and help ovulation</td>
<td>2cc IM</td>
</tr>
<tr>
<td>Lutalyse</td>
<td>Regress Corpus Luteum to induce heat</td>
<td>5cc IM</td>
</tr>
<tr>
<td>Banamine</td>
<td>fever reducer, anti-inflammatory</td>
<td>6cc IM</td>
</tr>
<tr>
<td>Naxcel</td>
<td>antibiotic (dirty uteruses/chronic mastitis)</td>
<td>20cc SQ</td>
</tr>
<tr>
<td>Hi-energy paste</td>
<td>ketosis treatment: propylene glycol supplement</td>
<td>1 tube oral/eod</td>
</tr>
<tr>
<td>Probios</td>
<td>provides source of essential gut microbiials</td>
<td>2 pills oral</td>
</tr>
<tr>
<td>Lipotinic</td>
<td>ketosis treatment: niacin/b vitamin supplement</td>
<td>2 pills oral</td>
</tr>
<tr>
<td></td>
<td>decreases ketone conc./increases glucose levels</td>
<td></td>
</tr>
<tr>
<td>Pink Pills</td>
<td>antacid/mild laxative-comparable to Pepto-Bismal</td>
<td>2 pills oral</td>
</tr>
<tr>
<td>Calcium gel</td>
<td>calcium supplement (milk fever)</td>
<td>1 tube oral</td>
</tr>
</tbody>
</table>

**Ketosis:** Ketosis is caused by the incomplete metabolism of body fat which has been mobilized to supply energy. Indications of ketosis are: reduced milk yield, loss of body weight, loss of appetite, and occasionally, signs of nervousness. These signs may be clearly recognized (clinical) or not easily seen (sub-clinical). Most high-producing cows experience some sub-clinical ketosis during the first 5 to 7 weeks of their lactation. In general, fatter cows will experience more ketosis.

**Fatty Liver:** Fatty liver syndrome is the accumulation of fat within the cow’s liver. While the cow is putting fat on her back, excessive fat stores in the liver do not occur. These fat stores are the result of her taking fat from her back and trying to process that fat through her liver (generally during the prefresh period and early lactation). When the cow is loosing weight, the liver becomes fat. Fatty liver syndrome (>20% fat) impairs the function of the liver, increases the vulnerability to disease, reduces fertility and can potentially lead to death. Once fat levels
have increased in the liver, they are not reduced until the cow achieves a positive energy balance about 5 to 10 weeks after calving. Similar to ketosis, fatter cows are more prone to experiencing fatty liver syndrome than thinner cows during early lactation.

**Prevention (Ketosis & Fatty Liver):** Holstein cows in a close up pre-fresh group are assumed on average to consume 1-1.5% of body weight, or about 11-15 lbs of dry matter. This reduction in dry matter intake prior to calving is expected. We increase energy density in the diets, otherwise the cows will be expected to mobilize excessive amounts of fat from their backs, which sets them up for reduced dry matter take, ketosis and fatty liver syndrome following calving.

### Glossary:

**1st Calf Heifer or primiparous cow:** cow in her first lactation  
**Abomasum:** One of the 4 compartments of a cow’s stomach  
**Bolus:** big cow pill  
**Bull:** male calf  
**Cleaned:** refers to a cow expelling the placenta after calving  
**Colostrum:** the first secretion from udder after a cow gives birth; rich in antibodies needed by the calf  
**Dam:** Mother cow  
**DHIA:** Dairy Herd Improvement Association  
**DIM:** Days in milk  
**DMI:** Dry matter intake  
**Dry cow:** period of about 60 days at end of lactation where cow is not milked  
**Forage:** a component of the cow’s diet  
**Fresh cow:** just given birth  
**Heifer:** female calf/young cow who has never given birth  
**Ketosis:** A disease affecting the liver of fresh cows. Detected by excess ketones in the urine  
**Lactation:** Period of time a cow is milked (~305 days)  
**Mastitis:** An infection of the udder, often caused by environmental bacteria  
**Multiparous:** Cow in second or greater lactation  
**NM:** Net merit-used for sire selection in breeding committee  
**Omasum:** One of the 4 compartments of a cow’s stomach  
**ORTS:** Left over feed picked up during afternoon shift. Should be about 5-10% of the cow’s total daily feed. (Feed to 10% refusals)  
**Parturition:** act of giving birth (calving)  
**Peripartum:** around calving (usually 4 weeks pre to 4 weeks post) also considered transition cow  
**Postpartum:** after calving  
**Prepartum:** prior to calving  
**PTA:** Production Type Index- used for sire selection in breeding committee, it represents the animal's value compared against other animals of the same age in the Holstein breed  
**Reticulum:** One of the 4 compartments of a cow’s stomach  
**Rumen:** Largest of the 4 stomach compartments  
**TMR:** Total mixed ration- all feedstuffs mixed together and fed at once
Missing Chores

There is likely nothing that creates more problems and animosity among the group than missing a chore shift.

My suggestion after years of experience with students who missed their shifts,

DO NOT LET IT HAPPEN !!!

Priority one in this course is to make your shift on time or make a formal arrangement with the person doing scheduling to find someone to cover for you. When you let down your teammates someone has to cover for you. They might forgive you once, but over time your grade will suffer.

Students who forget chores, oversleep, or get caught in traffic, will suffer the wrath of your peers and farm staff, if you did not find someone to cover your shift. You are taking care of live animals, and they depend on you to be there. You may find that skipping a shift in CREAM is worse than missing any other assignment or class you have had in college.

If you miss a shift, your name will be highlighted on the CREAM Chore roster. This records that you missed the shift. In addition, the Vice President will keep track of all missed shifts and notify Dr. Conroy all faculty/staff advisors. Missing a chore shift with no-one to cover for you will affect your grade.

You will lose half a letter grade for each missed shift.

Consider this: Jon Whitehouse has fired students who worked at the barn when they missed more than 2 shifts.