University of Idaho

Department of Animal & Veterinary Science

Caine Center News

Phone: 208-454-8657

July 2005—Summer Issue

Dear Friends

Surprise, a newsletter in mid year! Will wonders ever cease. However, we have some news that seemed like it would be appropriate for a newsletter—so you have a newsletter. As you know, Dr. Ricardo C. Chebel, our dairy specialist has been with us for about 9 months and has been very busy setting up a teaching program, putting on short courses for veterinarians and working with dairy producers in the area. July and August we are teaching two Dairy Veterinary Production blocks with 9 scheduled students. We were really surprised with the student interest in a straight 4 week dairy block and hopefully some of these students will be looking for work in the area when they graduate next May. If you veterinarians are looking to hire someone, you might want to interview some of these students while they are here. By the way, we could use more teaching cases during those months, if you run into any you think would be interesting.

Also, as you may know, Dr. Anderson is due to retire in September and we are now in the process of looking for another pathologist. The application period will end the middle of July, so hopefully by the time Dr. Anderson retires, we will have a replacement. In the meantime Dr. Stuart Lincoln has promised to help us out if we get into a jam. So, regardless, we will still be able to continue doing necropsies on your puzzling cases.

NEW FACES KEEP US YOUNG

If you drop by this summer you may see some new young faces. Andrea Farner, an animal science major at U of I is spending a summer internship with us. Rachel Wilbur, another Treasure Valley pre-vet student is working for Dr. Anderson on a Crypto Project for the summer. Susan Lindstedt, another pre-vet student is volunteering part of the time and working part of the time helping with the scrapie project and other odd jobs. Jill Grimberg, a graduate student is working with Dr. Chebel on an estrus synchronization project. Annie Pierce, who is from north Idaho, is a graduate student of Dr. Glen Weiser's working on a wildlife Pasteurella project examining properties of pathogenicity. We love having these young students with us for the summer; it keeps us all feeling young.

We've included some news and a case or two that we hope you will find interesting. Again we thank you all for your support over the last year (s) and don't forget to remember us when you have those great cases. We have a hard time teaching without them.

Marie S. Bulgin

Marie S. Bulgin, DVM

Donation Animals

The Caine Veterinary Teaching Center has developed new guidelines and requirements for the acceptance and use of donated live animals. Please contact the duty clinician or Drs. Bulgin or England prior to bringing in an animal for donation.

Anderson's Final Notes

Final Thoughts (Cautiously avoiding the 'political')

So what are you going to do when you retire at the end of September after 27 years of service? "Be Free" is my answer. Well, after I finish with my wife's list….which, come to think of it, seems to be limitless. Free????

The years I've spent here in Idaho working on cases presented by veterinarians and livestock producers have been good to me. We've struggled together and made some progress. We, Dan Barrett and I, described the first cases of "Bungholicus Fantasticus" in the butts of cows. Everything under the tail was eaten away! "It was aggressive Magpies," the locals opined. Not so according to others who were sure it was coyotes sneaking up on heifers and eating the anus and vulva out before they could get up. Fish and game consultants disagreed. Must have been perverts! But we finally incriminated the canine culprit and published the article although the editors didn't like "Bungholicus Fantasticus." Thought it sounded unprofessional. Your search engine will self-destruct if you type that one in. Can computers get diarrhea?

Thinking back, there were weird cases like the cow magnet that was found in the heart of a slaughter animal (that baffled the students) and the fabled wooden stake, through the heart(!*!*!), that a steer carried around unobtrusively for most of a day. We do have the unofficial world record twine wad extracted from the rumen of a cow by the future, Dr. Carmen Ames; the wad was about 90 pounds soaking wet. Come to think of it, so was Carmen. There is much to chuckle over and be grateful for.

The continual parade of outstanding students made the teaching mission Caine's flagship endeavor----and-----a real joy. Our battles with "city hall" were always on behalf of the interests of the students. Whew! Do I have to resist getting political here! We lost some key battles and our teaching program was somewhat crippled. But the gratitude of the students for the experiences we provided was ample reward. After all, in what veterinary school anywhere do students get to manage cases and perform surgeries without being trumped by residents? Besides, we often provide vet students with their first case of Cryptosporidiosis.

In fact we published the first account of crypto in a vet student. Isn't she now working at the State Dept of Ag? Ugly! Not the student----the disease.

Memories? Egad, I need again to staunchly avoid the political here; keep this positive. There may be children present. But certainly there has been a nice variety of chuckles, disappointments and good deeds done. Each of my colleagues and coworkers has known life's personal victories and defeats; and in the midst of them, each continues, in subtle and not so subtle ways, to make my life a little better.

Reflections? I've been a witness to the cycles of life as they've been played out in various ways by the many actors on the stage. Some folks learn in the "school of hard knocks." The class project —- buy some sale yard calves; feed them well; treat the illnesses without success; bury the calves. The school colors obviously are black and blue. Mostly, we humans are trying to make it safely to death, neither risking too much nor claiming too much. I find that human endeavors are fraught with abundant----shall we call them----'learning experiences,' whether it be in conducting a basement remodel or a foreign war. There are similarities in underestimations, overestimations and unpredictabilitys. The consequences are vastly different but so are the stakes. The one leaks water; the other, precious blood. The one elevates your property taxes; the other changes the world one way or another.

The Caine Center's efforts toward the veterinary profession and livestock industries over the past quarter century must have had a beneficial effect, for there have been talented faculty and support staff here giving their all. I'm glad to have been a part of the good deeds done in service to Idahoans and, come to think of it, many outside our borders and across the oceans.

Bruce C. Anderson

Embryo Transfer and Fetal Sexing Service

Being aware of the fact that embryo transfer and fetal sexing service has not been provided by practitioners from the area during the past few years and having the expertise to do so, Dr. Ricardo Chebel is offering this service in reproductive biotechnology. Embryo transfer is a technique where cows of genetically superior value are superstimulated (superovulation) with natural hormones to increase the number of eggs available for fertilization at the time of AI. Therefore, when we inseminate a "superovulated" cow with semen of a high quality bull we are able to generate higher numbers of embryos than during a normal estrous cycle. The embryos are recovered from the "donor cow" through a non-surgical procedure 7 days after AI. The best quality embryos are then separated and either implanted into "recipient" cows/heifers or frozen for implantation latter – frozen embryos can be stored for years.

The benefits of embryo transfer are many. With embryo transfer techniques we can generate a larger number of superior genetic value offspring in a short period of time. A cow yields usually 1 calf per year, but with the use of embryo transfer a given cow could yield up to 20 offspring in a year. In dairy herds in Florida the use of embryo implantation during the summer months has resulted in increased conception rate when compared to cows serviced through AI. That is because, embryos produced and recovered during the cooler seasons and stored frozen are more resistant to heat stress.

This is a technique that can improve dairy and beef herd's genetics, maximize the use of high quality semen, and in some cases even improve the conception rate during the summer months in dairy herds. With the embryo transfer service we would also provide fetal sexing through ultrasonography of recipient cows, allowing for the determination of sex of the offspring produced around 50-60 days post-transfer. We are excited to provide such service and look forward to working closely with producers and veterinarians that see the benefit of this reproductive biotechnology service. Please contact us at (208) 250-7347 to learn more.

THE CAINE VETERINARY TEACHING CENTER IS NOW OFFERING A NEW SERVICE:

EMBRYO TRANSFER FOR DAIRY AND BEEF COWS.

(208) 454-8657
DR. RICARDO CHEBEL—(208)250-7347

Case of the Month
Urolithiasis in Small Ruminants

We just sent Pepper, a wether Alpine pack goat home after a bout of urolithasis. We see a number of these cases throughout the year and we get a few calls from veterinarians and a lot of calls from owners concerning this life threatening problem. 4-H lambs, too, often are afflicted with the problem, but the stones differ. Lambs and cattle seem to make struvite crystals, a Mg NH4 P04 (magnesium ammonium phosphate) crystal, while goats tend to produce little spherical gold beebes of calcium carbonate in various sizes.

Two other major differences between the two species are: 1) goats, like cats, are long time pets, while lambs usually have a life span no longer than a few months, and 2) the struvite crystals readily dissolve in acid urine, and calcium carbonate stones do not. Thus, treatment varies. The urethectomy in the lamb and steer is a common solution if the stone can't be dislodged in any other way, whereas that simple, if crude, surgery is not going to work for a long time pet because of problems with ascending urinary infections.

Often if the lamb is still dribbling when seen, 1 level teaspoon of NH4Cl (ammonium chloride) twice a day will cause the urine to acidify, the crystals to dissolve and presto, with the help of a little banamine to relax the urethra, the stones will loosen up and pass. If the lamb is not passing any urine, set it on its butt, exteriorize the penis, check for stones in the accessible urethra. If present, cut them or pinch them out. Give NH4Cl for a few days and antibiotics for a day or two to prevent infection of irritated mucous membranes and presto, end of problem. Okay, if no stones are seen in the visible part of the urethra, snip off the penile process, and catherize. No you won't get into the bladder but you may either dislodge the sludge in the urethra, or you can, with a little saline with a few drops of lidocaine, blow the sludge back to the bladder. At this point you can acidify the urine immediately by instilling dilute vinegar, and the problem should be over. The urethrectomy is reserved for those lambs that have the "water belly" or swollen prepuces indicating that urine is being forced into the tissue from a rupture of the urethra or for which none of the above works.

Goats on the other hand are a whole different ball game. Acidifying the urine does not get rid of the handful of stones still in the bladder even if you are able to find the stones in the visible part of the urethra. So the problem recurs probably before the goat gets home. So, the solution is to open the bladder and remove ALL of the stones. No small endeavor, I might add. Be prepared with a lot of saline and patience.

Continued...

Because you probably aren't going to be 100% successful, you are going to place a Foley catheter in the bladder and take it out the abdominal wall—not your incision. The Foley stays in no less than a week or until he will urinate when the catheter is clamped.

We have left catheters in as long a month while the stone was hauled off molecule by molecule by white cells, I presume. **Some tips:** 1) Fill the balloon on the catheter with water, not air! Air escapes! Seal the end of the catheter with super glue. Otherwise, two weeks down the road, the catheter comes out of the bladder. Also using a stab wound, put your catheter through the abdominal wall from the inside out—first, before placing it in the bladder.

It's a fun surgery for you surgery buffs. It's fun to see these animals get better and its fun when your client thinks you're a miracle worker. Don't forget to religiously flush the bladder. You've got to get all those little stones out before you pull that catheter, whenever that is. If the BUN is over 50, the animal won't eat and IV fluids are the fastest way to get it down. Lots of IV fluids. Goats also pout and they miss their owners; sometimes they won't eat until the owner visits and brings treats. So if you think the owner can do the bladder flushing and administering the antibiotics (I recommend penicillin) send him home and have him come in weekly for checks. Obviously, this is not a cheap or short term treatment.

Preaching prevention is the next thing—which is diet related and requires some attempt to balance the calcium phosphorus ratio and some means of acidifying urine.

PREVENTION

- Urine acidifiers
- Balanced calcium phosphorus ratio in the diet
- NaCl (salt)- up to 4% in the diet. ("water follows sodium")
- Clean, fresh, easily accessible water and enough for all individuals
- Tank heaters in the winter months—goats don't like ice water

Even though the stones don't dissolve in acid urine, they don't form in it either. **Biochlor** and **Soychlor** replacement products are used to prevent milk fever in dairy cows and are good products for goats because most goats will eat them, although they do seem to prefer Biochlor.

One half measuring cup per goat per day appears to reduce urine pH to around 6.8.

Otherwise, give 1 gm of ammonium chloride per day per goat (or sheep) whatever way you can get it down them. Because it tastes nasty, that may take some doing. But it can be put in salt. Goats eat about ½ - 1 oz. of salt per day.

The ideal calcium/phosphorus ratio for male ruminants is 2.5 to 1. Grass hay has a calcium/ phosphate ratio of 1:1. Alfalfa hay is 5.68:1. A combination of half alfalfa and half grass hay gives approximately a 2.3:1 ratio. It is best to save small amounts of grain for treats only because grain tends to unbalance the ration and make them fat.

Urinary stones are common for goats on pasture, particularly clover-rich pastures, or where an abundance of oxalate containing plants occurs (dock, lamb's quarter, pig weed). Oxalates bind calcium, some of which dissolves in urine, allowing the calcium to bind with carbonate.

Halogeton, spinach, and rhubarb contain high amounts of oxalates, which can cause the animal to die of hypocalcemia or the calcium oxalate crystals plug up the kidneys literally and the animal dies of kidney failure.

Marie S. Bulgin, DVM

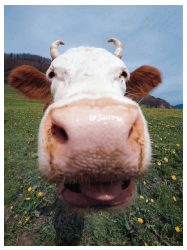
2.5 lbs of ammonium chloride can be mixed into 50 lbs of loose trace mineral salt and fed free choice.

Magic Valley Ultrasound Workshop

The Caine Veterinary Teaching Center will be hosting an ultrasound workshop in the Magic Valley during the fall semester. This workshop will be open to bovine veterinarians. During this one-day workshop we will have lectures in the morning to discuss and introduce the basic principles of:

◊ ultrasound machines
◊ identification of ovarian and uterine structures
◊ early pregnancy diagnosis
◊ fetal sexing.

In the afternoon we will have hands-on practice with dairy heifers using a variety of machines (portable and stationary). During the practice we will focus on identification of ovarian structures, early pregnancy diagnosis, and fetal sexing.



We are inviting several ultrasound manufacturers, such as Aloka, Alliance, Universal, Pie Medical, Ultrascan to participate so that veterinarians have the opportunity to try different machines. We will limit the number of participants to a maximum of ten. Cost of the workshop is yet to be determined.

We will send be sending flyers to you around August so that you can register. Hope to see you then!

Ricardo C. Chebel DVM, MPVM

Idaho Coalition National Animal Identification System (NAIS)

Project Report, June, 2005

Tagging status

- Whole herd EID (electronic identification). Approximately 6000 individual animals have been tagged to date. All participants have premises identifications. The Project is tracking animal movements/shipments. As of the beginning of June we have successfully completed the first reading of tagged animals as they were loaded onto a truck for shipping. The system, as it is now, is very expensive and we're working on more economical systems.
- County Extension Educators Danielle Gunn and Shannon Williams are co-investigators. There are 12 participating ranches in the following counties.

o Nancy M. Cummings Research, Extension and Education Center, Lemhi County and two private ranches
o Lemhi and Gem Counties
o Owyhee and Gooding Counties
o Fort Hall Indian Reservation in Bingham County
o Adams and Payette Counties
o 3 4-H/FFA Livestock Sale Participants
  Gem-Boise County Fair
  Lemhi County Fair
  Malheur County (OR) Fair

Field Discoveries

♦ Tags and Applicators are company unique—tags and tag applicators at this time are not universally interchangeable. Some distributors did not know this!
♦ Retention is excellent (<0.1% loss to date).
♦ One tag has actually failed to read for me (most "failure" problems were related to tag/reader incompatibility) and:
♦ The person doing the reading needs to be patient: depending on orientation of the ear, tag and/or reader.

Continued...

♦With tag/reader incompatibility and interfering iron/metal (equipment) the reader response can be delayed. (Reading is readily interrupted by steel chutes and the malalignment of the tag and reader.

♦The NAIS (National Animal Identification System) suggests that only the left ear be utilized; however there were a couple ear markings that made this impossible. Tag placement has not been a problem; it just requires more exact application and a little longer to apply—some big guys really complain about how much work it is!

♦ Ear infections have been very minimal because all the studs used in this project do not have a protruding applicator needle.

♦ To date, only one reader has been totally reliable—Destron Brick.

◊Some devour batteries while some require ancillary power including a different cable.

◊Early editions of the Destron pocket, the Allflex stick and the Y-Tek Bluetooth readers have all had failures, requiring replacement. The replacements have been reliable to date.

♦ Biggest problem is related to computer hardware and software:

◊Laptops are difficult to read in the sunlight and rain.

◊Dust, Manure and blood obscure the screen.

◊Dust interferes with touch pad sensitivity.

◊Cold fingers don't work well either!

◊Cables, Cables, Cables!!! It is easy to get tangled up.

◊Bluetooth, Bluetooth, Bluetooth!?!—a wireless technology. This technology still has growing pains—for the user too!

◊Availability of power—don't get too far from a current bush!

◊Battery backups, ancillary power—quiet generator.

◊Beware of interference from some sources of power, i.e., inverters.

♦ A lot of the initial work was doubled !

◊Paper backup-- preparation of excel worksheets for manual record keeping.

◊Tags supplied by most companies are not in sequential order so bags of loose tags may require manual sorting to facilitate paper backup.

◊Y-Tek tags are sent in order.

◊ Allflex will now send tags in order for an additional fee per tag.

◊ Electonic ID numbers can be put directly into an Excel spreadsheet with a nessary "wedge" program that costs about $250.00

James J. England, DVM, PhD

Leptospirosis

A month or so ago, I received a call from Dr. Lionel Ickes. He was on his cell phone traveling, breaking in and out as he talked, but the gist of the conversation was, he had just put a sick steer on a trailer and they were on their way from somewhere out toward Melba. He was thinking the steer might have Lepto, (it was urinating red urine) and he was hoping we could get some urine from him and do a darkfield microscopic exam before he died.

The steer died enroute, probably less than 15 minutes before he arrived, and was on the necropsy table no more than 20 minute post mortem. The steer was immediately necropsied on arrival, and although Dr. Anderson was gone, with the advice and direction of Dr. Beth Mamer, urine from the bladder and fluid expressed from the kidney were put into her "waiting hands" no more than 30 minutes post death. Dr. Mamer reported more than 500 dead *Leptospira spp.* bacteria observed per field by dark field microscopy (DFM). This was pretty exciting stuff in a teaching hospital and all students were gathered up for a look. However, within an hour all of these bacteria had disintegrated to unrecognizable debris. Even when we went back to the dead steer, the Leptospira were gone.

The case impressed me for several reasons.

1) We don't seem to see a lot of Lepto—at least we don't diagnose much Lepto, but it is obviously out there.

2) Dr. Mamer says there were 500 organisms per field, I would have said 5000—there were a lot!!!!

3) They were gone so rapidly. Dr. Anderson may have been able to find them utilizing histopath and a silver stain, but to diagnose Lepto by darkfield, you practically have to have the microscope set up behind the animal. For this reason I thought perhaps a little refresher on Lepto might be appreciated.

Marie S. Bulgin, DVM

More on Leptospirosis

Leptospirosis is considered the most common zoonotic disease of animals and humans throughout the world. This disease is caused by *Leptospira interrogans* serovars, of which over 200 antigenically distinct serovars exist. These different serovars will cross react on serology tests, **but not cross protect**! All *L. interrogans* serovars are slender spiral bacteria that most commonly infect mammalian kidneys. This disease causes acute and chronic kidney failure, abortion and infertility. In fact, a new form of Leptospirosis has been reported in the last two years, a pulmonary form in humans. The symptoms for this disease are pulmonary hemorrhage without jaundice and renal insufficiency.

Leptospira spp. infection is either waterborne or spread by direct contact with infected animal- or human-infected urine or other secretions. In fact, livestock farming, particularly dairy farming, is considered one of the higher risk occupations associated with Leptospirosis. Infection occurs through skin cuts, abrasions and through the eye. Fortunately most infections are asymptomatic. Symptoms include jaundice, meningitis, renal failure, pulmonary infiltration and abortion, usually occurring during the first two weeks of infection. The shedding of the infectious bacteria by the millions in the urine usually occurs in the third week of infection. The *Leptospira spp.* shed in urine and other secretions into water and neutral soil are infectious for more than two months depending on the outside temperature. (So, why can't we find them in dead tissue after a couple of hours? Don't know; nobody explains this in the books). In temperate climates, peak infection occurs during the spring, summer and fall.

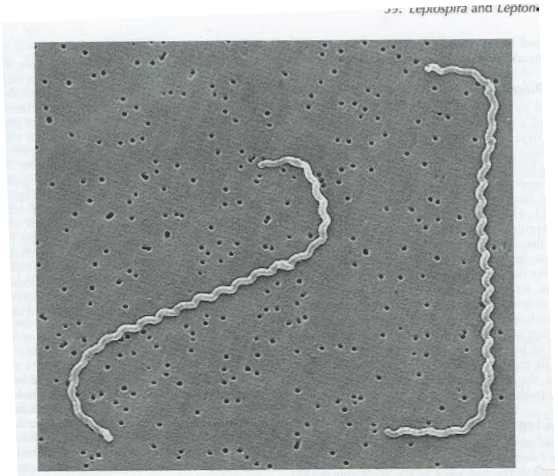


FIGURE 1 Scanning electron micrograph of leptospiral cells bound to a 0.2-μm-pore-size filter. Magnification, approximately ×3,500.

At Caine, we receive both samples and animals for Leptospirosis diagnostics. The Microbiology diagnostic services at CVTC can assay only fresh, unfixed samples. *Leptospira spp.* are extremely difficult to culture and only five laboratories in the U.S. currently perform this testing. However, we can test for *Leptospira spp.* in urine and from urine squeezed from kidneys by dark-field microscopy (DFM)---if we have either the live animal or the dead animal very soon after death.

The samples must be submitted to the laboratory within one hour of collection or less than two hours after the death of the animal. The DFM test is a sensitive and specific test for *Leptospira spp.*--- if submitted in time. If the animal has been dead longer than two hours, submit serum, fresh and formalin fixed kidney and spleen for histopathology and immunohistochemistry.

Another one of the best tests for Leptospirosis is the microscopic agglutination test (MAT) utilizing serum. Washington Animal Disease Diagnostic Laboratory (WADDL) does this test using six *Leptospira interrogans* serovars on all animals' sera other than canines. The six serovars are: *bratislava*, *canicola*, *grippotyphosa*, *icterohaemorrhagiae*, *pomona* and the *hardjo* group. The serum from dogs is also tested for a seventh serovar- *autumnalis.*

Heart blood can be submitted if the animal is dead. Also serum samples from pen mates can be quite important to indicate exposure to *Leptospira*. Vaccination history is helpful, including the vaccine serovars used and when the animals were vaccinated. This information will help interpret titers from the MAT test. Acute and convalescent sera from several animals can indicate which animals were exposed, and possibly when they were exposed. A fourfold or greater rise in titer between paired sera can confirm a diagnosis of Leptospirosis, regardless of the interval between serum samples.

It is interesting that the vaccination of dogs for Leptospirosis is not done by some veterinarians anymore in the belief that they are more at risk for adverse reaction from the vaccine than they are at risk for the disease. However, some consideration of the dog's environment might be a good idea. A country dog in contact with cattle and wild rodents can easily carry *Leptospira spp.* between rats and children. Leptosprosis is out there and is a difficult disease to diagnose. One of the best ways to suddenly see disease in a species is to stop vaccinating.

Beth E. Mamer, MS, PhD

Calf Raising: New Approaches to an Old Theme

May 13th the Caine Veterinary Teaching Center hosted a guest speaker, Dr. Jim Reynolds, who gave a seminar on "calf raising". Dr. Reynolds is a DVM and MPVM graduate from UC Davis, Chief of the Clinical Program at the Veterinary Medicine Teaching and Research Center – UC Davis, Tulare, CA and primary clinician to 2 calf ranches and 1 veal calf ranch. All together he oversees approximately 45,000 calves in hutches.

For those of you that missed the seminar, here are some of the highlights:

The key elements for raising healthy calves are COLOSTRUM, clean maternity area, COLOSTRUM, treatment of calves navels at birth, COLOSTRUM, sanitation of calves housing area, and COLOSTRUM! GET THE IDEA???

The feeding of colostrum to calves in the first day of life may be old news but it is one of the most important elements of calves' immunity and health and there are people that still don't get the colostrum into the calves. Note that we did NOT say female calves … Male calves also need good quality colostrum as soon as they are born. Let's say it this way; we don't feed our girls any better than our boys, do we??? Although, some dairies may think it is counter productive to feed colostrum to male calves which will be sold as "day olds", the calves that do **not** receive colostrum experience higher morbidity and mortality, and that will affect someone's business!!! Furthermore, not feeding newborn animals colostrum could be considered a welfare issue. It is not very humane to set a calf up to die a miserable death of dehydration and scours. All calves (female or male) should be treated humanely!

COLOSTRUM!!!
Not feeding colostrum could be considered a welfare issue.

After the first or second day of life, calves should receive good quality whole milk or milk replacer that supplies sufficient amounts of energy and protein. Although, fluid milk only has approximately 3.5% fat and 3.2% protein, we have to keep in mind that milk is 88% water. Therefore, on a dry matter basis, whole milk provides approximately 29% fat and 26.6% protein of high quality and 100% digestible. It's obvious then why some milk replacers do not provide enough energy and protein to calves. Dr. Reynolds says that the dairy industry is the only industry that starves their babies. Remember, these are the same animals that we expect to deliver an offspring at 24 mo of age and to produce 24,000 lbs of milk. We better treat them right!!!

Because milk is the money making product of a dairy, many dairymen decide to feed calves the waste milk ("hospital milk"). Let's not waste the waste milk. However, we should be very careful with that idea! Although free, hospital milk that is contaminated with disease causing organisms can result in catastrophic results, increasing significantly the morbidity of certain diseases (i.e. mycoplasma pneumonia, *Salmonella*, arthritis, otitis) and possibly the resistance to antibiotics. To solve the contamination problem, pasteurizers will eliminate or, at least, decrease the concentration of bugs in the milk. However, low temperature/long time pasteurization (i.e. the famous home made batch pasteurizer), often doesn't do the job. In most of these pasteurizers, the temperature is not maintained high enough or constant enough (it is usually lower than optimal), making milk a nice culture medium for the bugs! Let me give you an example – when visiting a calf ranch that was having increased incidence of pneumonia, otitis, and arthritis (do you "smell" Mycoplasma???), we obtained pre and post-pasteurized milk samples. Obviously, if the pasteurizer, which by the way was a batch pasteurizer, was working well, we would expect lower bacterial counts in the post-pasteurized milk, correct!? Actually the bacteria count of the post-"pasteurized" milk was almost double that of the pre-pasteurized.

So, feeding waste milk to young calves seems to be a great decision (for economic and nutritional factors); however, one better make sure that the milk is free of pathogens that can lead to infections and diseases.

How much milk is too much milk??? We should ask ourselves how much milk we can give to a calf, and not how little we can give!!! Research indicates that for gains of 1.8 lb per day of body weight, dairy calves need to consume 8 to 10% of their body weight in milk or its equivalent. If dairy calves are born weighing around 100 lb, they would demand at least 1.2 lb of milk per day. In early stages of their lives, calves are not as likely to deposit fat, they actually use excess of energy and protein to grow faster.

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H**ealthy calves can be fed up to 16% of their body weight in milk** (around 2 gallons/day).

The bottom line is – if you want healthy and faster growing calves, FEED THEM MORE AND BETTER QUALITY MILK!!!

One of the most common questions asked by people responsible for treating calves is – "should I stop feeding milk when they develop diarrhea???" Think of yourself when you are sick. Your mom never stopped feeding you and only gave you medicine when you were sick, did she??? Bottom line, if the milk is not the source of the disease (i.e. if milk is not contaminated) calves should still be fed milk. That is fundamental so that they have enough energy and protein to keep their immune system, and most importantly, other vital functions going to fight the disease and hopefully recover fast!

DO NOT STOP FEEDING MILK TO SICK CALVES UNLESS THEY LOOK BLOATED!

In my perspective the most interesting data that Dr. Reynolds shared was regarding what he calls "THE REAL PROBLEM". I believe that everyone (I was for sure) was expecting to see the names of the bugs and diseases that we are usually faced with when raising calves. However, the "real problem" according to data gathered from hundreds of necropsies, was undernutrition. The majority of dead 8-day old calves had moderate adipose tissue (fat) atrophy (wasting) and that the majority of 20 day-old calves had severe adipose tissue atrophy. What does that mean? Calves that were necropsied were moderately to severely undernourished!

Dr. Reynold's "secrets" to raising healthy and fast growing calves are not really secret. You've known it all along; it's

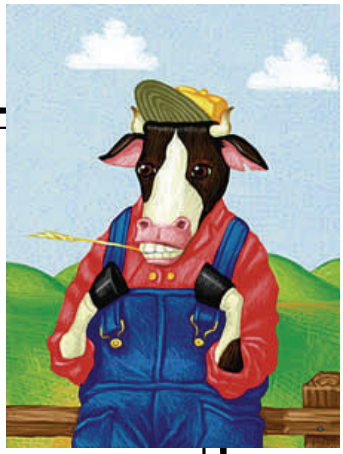
A LOT OF COLOSTRUM, BETTER NUTRITION, AND KEEP THEM COMFORTABLE.
Let' just do it!!!

Ricardo C. Chebel DVM, MPVM

Welcome Students—Class of 2006

We are expecting a total of 43 students from July 2005 through April 2006. Dairy blocks are scheduled for July and August 2005. General food animal students are scheduled for September 2005 as well as January and February 2006. October and December 2005 will bring us students for a Feedlot block . Beef Calving students will be here January of 2006; And, a couple of students will be here the end of January 2006 for a Sheep block.

Please keep us in mind for cases during those months so our students can gain memorable experiences while they are with us at the Caine Center.



WATCH FOR OUR CAINE CENTER WEB SITE!!! We are working on a Caine Center link to the Animal & Veterinary Science home page web site:
www.avs.uidaho.edu/index.htm

INSIDE

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Caine Center News