

Colorado Dairy News

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Johne's Disease Certification for Colorado Veterinarians

Last Spring a Voluntary Bovine Johne's Disease (JD) Control Program was approved and adopted for the state of Colorado. This program follows the national guidelines for JD programs, so that it is consistent with programs being adopted by other states. There are three levels of participation available to cattle producers; education, management, and testing. The program is completely voluntary, and is designed to be user-friendly.

The program was developed by the Colorado Johne's Disease Advisory Committee, with representatives from the livestock industries, academia, and the regulatory agencies. The current chairperson of the committee is Mike Veeman. Dr. Ron Ackerman, our Assistant State Veterinarian, is the Designated Johne's Coordinator for the state. You can contact either of these individuals to get more information. The State Veterinarian's office or Bill Wailes, our Dairy Extension Specialist, can supply you with either a brochure that summarizes the program or the complete detailed program guidelines.

In order for dairy producers to participate, the first step is education about the disease and the program. Included in this step is a farm evaluation that assesses the risks for JD transmission. In order for you and your veterinarian to participate at this level, or to move forward to higher levels in the program, it is important that all parties are well informed about the program. Colorado Veterinarians who perform diagnostic testing for JD are required to obtain state-sponsored training pertaining to the regulations and methods of these tests.

On Monday, January 13th, 2003, there will be a day-long continuing education program for veterinarians licensed in Colorado who wish to become certified to test cattle in this state. The training program will be held at Colorado State University, Fort Collins, to enable veterinarians attending the CSU Annual Conference for Veterinarians, January 11-13, 2003, to become certified in JD control. Registration/attendance at the CSU Annual Conference for Veterinarians is not a prerequisite for attendance at the JD certification program on the 13th. The certification training program is free to licensed Colorado veterinarians.

The location (building and room) of the training program will be announced. Interested individuals are requested to pre-register by contacting Ms. Lori Williams at (970) 491-1274. Registration for this certification program will also be available on-site during the CSU Annual Conference for Veterinarians.

Please discuss this program with your veterinarian. We encourage all Colorado dairy producers to participate in this voluntary program at some level.

Killed Viral Vaccine Trial in Baby Calves Drs Rob Callan and Jason Osterstock CSU, ILM

Respiratory disease in dairy calves remains a significant cause of morbidity and mortality in the first months of life. The effects of juvenile pneumonia are life-long and include decreased rate of gain, decreased milk production, and decreased survival in the herd. These effects are in addition to the direct cost of diagnosing and treating pneumonia in calves. There are many factors that can affect the incidence and outcome of pneumonia events in calves including housing, environment, weather, diagnostic skill, therapeutic success, and passive transfer of immunity from the dam.

Maximizing passive transfer of antibodies from the dam is a significant management tool in the reduction of respiratory disease in dairy calves. Studies have shown that calves with low IgG have a two times greater risk of pneumonia when compared to calves with serum higher IgG levels. The duration of passive immunity appears to be approximately 3-4 months; how-
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***Important Dates:
Mark Your Calendar***

October 2-6, 2002: World Dairy Expo, Madison, Wisconsin.

January 28, 2003: Colorado Dairy Nutrition Conference, Greeley, CO. For more information contact William Wailes, CSU Dairy Extension Specialist, 970/491-5390.

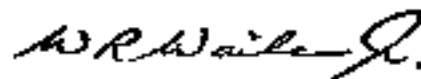
January 29,30, 2003: Colorado Dairy Days, Greeley, Co. For more information contact William Wailes, CSU Dairy Extension Specialist, 970/491-5390 or Keith Maxey, Weld County Extension Office, 970/356-4000, x4475.

A Message From Your Extension Dairy Specialist.....

Drought relief assistance announced by Secretary Ann Venemen, September 19th, 2002: Approximately \$752 million will be available for a new livestock compensation program for cattle, sheep and buffalo producers in counties that have received primary disaster designation due to drought in 2001 and/or 2002. Most of the dairy producers in Colorado will qualify for this payment. Sign up begins on October 1 and payments will be made soon thereafter. Questions regarding this assistance should be directed to your county farm service agency.

August milk production up 3.8%...Cow slaughter up also: USDA has estimated that cow numbers in the top 21 states were up 51,000 head over numbers recorded for 2002 and 3,000 head more than in July 2002. In all 50 states cow numbers were reportedly up 80,000 head more than last year and 4,000 more than last month. At the same time USDA reported that dairy cow slaughter is also running ahead of earlier numbers. These numbers bring to mind the big question: "If we are killing more cows and we are milking more cows where are they coming from?"

Colorado Dairy Nutrition Conference: January 28, 2003 will be the Colorado Dairy Nutrition Conference. Strategies for another drought year, for cropping plans and forage programs will be discussed. We are finalizing the program now and will be mailing out a preview in the next month. *Save this date!*



William R. Wailes, Colorado Extension Dairy Specialist



***Integrated
Livestock
Management***

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is published

bimonthly as a service to those people interested in the health and welfare of the Colorado dairy industry.

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(www.combs.colostate.edu/ilm)

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Commodity Price Quotes

By-Product Feeds	Price/Ton Spot Loads	Price/Ton August-Sept
Bakery Waste	\$110.00	NQ
Blood Meal	\$495.00	NQ
Corn Gluten Feed	\$98.00	NQ
Corn Gluten Meal	\$310.00	NQ
Corn Hominy	\$118.00	NQ
Flaked Corn	\$140.00	\$134.00
Whole Corn	\$125.00	\$119.00
Cottonseed Meal	\$180.00	NQ
Whole Cottonseed	\$178.00	\$155.00
Distillers Grains	\$120.00	NQ
Pork - Meat & Bone Meal	\$195.00	NQ
Tallow	16.5¢/lb.	NQ
SBM - 48%	\$210.00	NQ
Wheat Middlings	\$100.00	\$112.00
Soybean Hulls;Meal/Pellets	\$105.00	NQ
Canola Meal	\$160.00	NQ

These price quotes are delivery at Greeley, Co

Back to the Basics The Dairy Cow Heat Cycle

*Patrick D. Burns, Ph.D.,
Colorado State University*

The Colorado dairy industry has seen tremendous changes in the past 12 years. New and more effective heat synchronization and superovulation programs have been developed. Sexed semen is now commercially available in Europe and should be available in the US after various non-science issues have been resolved. New heat detection aids (e.g. HeatWatch) are available to more accurately detect heat, and bST has been approved for use in lactating dairy cows. We have also made advances in our basic understanding of nutrition and genetics.

As a result, milk production has increased approximately 15% over the past 12 years (20,736 lbs per lactation in 1990 compared to 23,722 lbs in 2002). However, not all changes have been positive. Reproductive performance has continued to decline during this period. Services per conception have increased by 27% (2.03 in 1990 compared to 2.77 services per conception in 2002) and days open by 24% (130 in 1990 compared to 170 days open in 2002).

Managing reproduction in large dairy herds is difficult and can be just down right frustrating. We are continuously looking for that magic elixir that is going to solve all of our cows' reproductive problems. However, that is simply not going to happen. Mel DeJarnette of Select Sires once stated, "When a piece of equipment or machinery is broken, it's impossible to fix it unless you thoroughly understand the parts and how they are 'supposed' to work. The same is true with your cows and your reproductive management program. The more you understand about the cow, the more your management will cater to her needs, improving your AI results, and the quality of your cow herd at the same time". I agree with this statement wholeheartedly. The intent of this article is to review the hormonal changes that occur during the heat cycle of the cow. Knowing how the reproductive system normally functions will allow you to better manage reproduction in your problem cows.

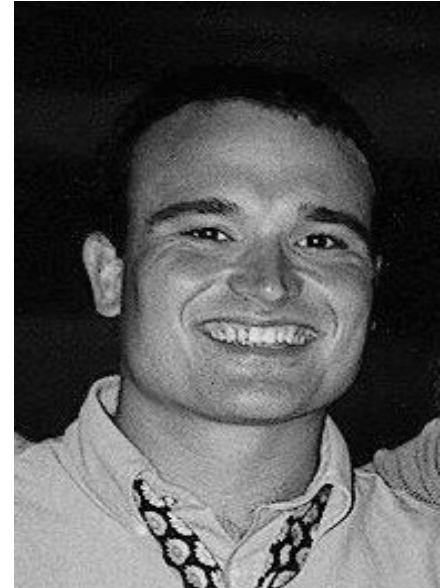
The heat cycle for the cow is approximately 21 days in length (range 18 to 24 days). There are a number of ovarian and hormonal changes that occur during this 21-day period. These changes are shown in figure 1 and are describe in detail thereafter.

The Period of Heat

Day 0 of the heat cycle is the day of heat. This is the period of the heat cycle in which the cow will stand to be mounted by the bull or herd mate. Most textbooks will tell you that heat lasts for approximately 18 hours in the cow. However, under continuous surveillance with the HeatWatch system, it was observed that cows are in heat for only 6 to 8 hours. During this time, there is a structure on the ovary known as the follicle. The follicle is a fluid filled blister-like structure that contains the egg. The follicle also produces the hormone estrogen and it is this hormone that is responsible for the increase in vaginal mucous secretion during heat, standing heat, and the increase in uterine 'tone' that aids in sperm transport. Another function of estrogen is to trigger the release of gonadotropin releasing hormone (GnRH) from within the brain.

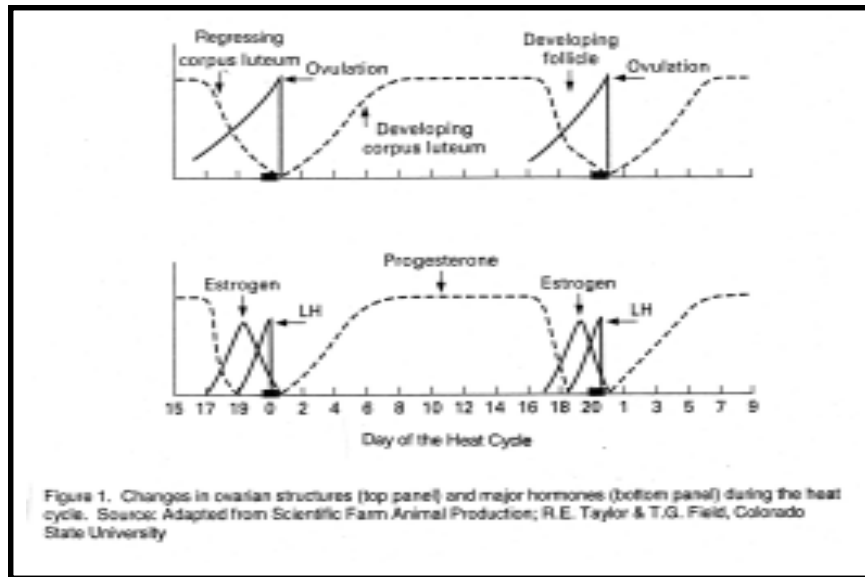
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ILM Welcomes Dr. Kevin McSweeney



When you meet Kevin McSweeney you can tell he has spent his life around dairy cows and his good-natured drawl immediately identifies his Virginia roots. After receiving his undergraduate degree in Dairy Science from the University of Georgia, he was a herdsman on three dairies in Virginia and Colorado. Since 1997 he has worked with Dr. George Seidel on the process of sexing bovine sperm, and improving fertility in cattle. Kevin also has considerable background in embryo transfer (surgical and non-surgical), reproductive ultrasound (pregnancy diagnosis and fetal sexing), artificial insemination, and in-vitro fertilization.

Dr McSweeney has been involved with ILM projects on Johnes, coliform mastitis and salmonella and also active in our herdsman calving schools and veterinary ultrasound training since 1998 while attending CSU. Last spring Kevin received his DVM from CSU and is now pursuing graduate research training with the ILM. His main focus of research will be investigating techniques to improve pregnancy rates in dairy cattle by preventing early embryonic loss.

(Heat Cycle, continued from page 3)

Ovulation, Fertilization and Formation of the Corpus Luteum

GnRH is responsible for causing the release of another important hormone from within the brain – luteinizing hormone (LH). LH is the hormone that will act on the ovary to cause the follicle to ovulate (the release of the egg from the ovary). The egg is released into the oviduct about 32 hours after the onset of heat. Fertilization will take place in the oviduct if sperm are present. The fertilized egg (embryo) will remain in the oviduct for 3 to 4 days before entering the uterus.

Following ovulation, LH will also cause the remnants of the follicle to develop into the corpus luteum. The corpus luteum is an extremely important structure on the ovary. As the corpus luteum grows it begins to secrete the hormone progesterone between 4 and 5 days after heat and reaches maximum size and progesterone output at 9 to 10 days after heat. Progesterone is essential for pregnancy. It prevents the cow from coming into heat and ovulating as well as prepare the uterus for pregnancy

Regression of the Corpus Luteum

If the cow does not become pregnant, the uterus will release the hormone prostaglandin (PG) on day 16 to 18 of the heat cycle. PG will cause regression (death) of the corpus luteum, resulting in a rapid decline in progesterone. However, if there is a successful pregnancy, the embryo will block the release of PG so that the corpus luteum continues to secrete progesterone.

Period from Corpus Luteum Regression to Heat

The decrease in progesterone allows for an increase in GnRH. In addition to stimulating the release of LH, GnRH also stimulates the release of follicle stimulating hormone (FSH). FSH acts on the ovary to stimulate rapid growth of another ovulatory follicle. The follicle will secrete estrogen to cause the next heat and ovulation. The cycle is repeated until a successful pregnancy occurs.

The heat cycle of the cow is much more complex than what I have described. However, understanding the basic principles of the heat cycle will allow you to better utilize heat synchronization, AI, and management of problem cows.

(Trial, continued from page 1)

ever, statistically the risks of failure of passive transfer are evident as long as six months. Many Colorado dairies use an annual modified-live viral vaccine administered approximately 30 days after freshening to stimulate immunity to viral respiratory and reproductive disease in their cows and, subsequently, their calves. Killed viral vaccines offer the advantage of administration during pregnancy with a reduced risk of abortion due to abortogenic components of the vaccine. The administration of a vaccine prior to parturition is believed to increase the titers of the cows at the time of calving and potentially increase the amount of antibody available for passage to the calf via colostrum.

An investigation of the effects of killed viral vaccines in dairies was conducted by researchers at the CSU Veterinary Teaching Hospital. The study looked at the effects of administration of a killed viral vaccine to cows at dry-off on calf immunity. Forty cows were selected from a 1400 head dairy in northeastern Colorado. These cows received a modified-live vaccine 30 days after freshening as part of their routine vaccine protocol. These cows were then divided into 4 groups (one control and three different brands of killed vaccine). Blood samples were collected from the cows at the time of vaccination near dry off, approximately 60 days after vaccination during the dry period, and at the time of freshening. Additionally, samples were collected from their calves 2-9 days after birth and colostrum administration. These samples were analyzed for titers to IBR, BVD, BRSV, and PI3.

Preliminary data indicates that the addition of a killed vaccine at dry off to cows already receiving modified live vaccines after freshening offers no advantage in calf immunity. The titers of calves whose dams had received a vaccine were statistically no different than those calves whose dams were controls. Furthermore, there were no differences detected among the different vaccine brands.