

**NOTES & NEWS
FROM
COLORADO GENETICS, INC.
2011**

As another year gets “kicked off,” we look forward to passing along a few ideas that we have collected throughout the last year. At present, cattle markets have experienced all time highs, cow numbers continue to decline and bull sales are already showing strong trends ... all good reasons to utilize the increasing number of technologies available to efficiently and productively manage your cattle reproductive programs.

EMBRYO TRANSFER

- ✓ Excess fat has a negative effect on a variety of body functions according to Ken Olson of South Dakota State University. In regard to reproduction, reduced cow fertility is primarily affected by a negative feedback on reproductive hormones (FSH, LH, GnRH, etc.) that drive the processes of ovulation (release of a mature egg), maternal recognition of pregnancy (occurring at days 15 to 17 of pregnancy) and proper implantation of the fetus (through the placenta/uterine attachments) to the uterus (occurring about 30 to 35 days of gestation).
Also, other research indicates overly fat cows also exhibit an insulin metabolism disorder that effects the proper maturation of the egg within the ovary that is required for fertilization to take place. **Keep all breeding age females in moderate body condition.**
- ✓ At Colorado Genetics, Inc. (CGI) we have a program to re-synchronize recipients after your initial embryo transfer (ET) date that allows us to transfer embryos into the recipients that did not become pregnant at the first transfer. This results in being able to use a recipient group **twice within 30 days** in order to tightly group the calving of a set of embryo calves. This protocol works very efficiently. Contact us for details.
- ✓ In a recent conversation with Dr. Pat Burns of the University of Northern Colorado, I received an update on his past research involving Omega-3 fatty acids to increase fertility and pregnancy rates in beef cows. It appears that Omega-3, found in fish oil products, may be having an influence on the uterus and corpus luteum (CL) to decrease or modulate production of prostaglandin (PGF). This can be an important factor during the critical time of maternal recognition of pregnancy when the embryo sends hormonal signals to the cow to maintain the pregnancy. This product may become a fertility “bio tool” for cattle in the future as a commercial product is now available. We will keep you updated on new research.
- ✓ After using MultiMin 90, an injectable trace mineral, for the past few years we are again including this product in all CGI protocols. Evidence is being accumulated within the ET industry that this complement to a well balanced mineral program may in fact have a positive influence on embryo production and pregnancy rates.

- ✓ Semen used for ET should be the best quality available in order to increase fertilization and quality of the resulting embryos. Ask the bull stud for post-thaw results on the collection date of the semen you will be using.
- ✓ Remember, the genetic value of your frozen embryos tends to decrease with time --- consider transferring or selling your frozen inventory this Spring. We will begin to invoice for semen and embryo storage with a three month invoice at the end of March.
- ✓ Embryo Transfer - Protocols are available for both heifers and cows to produce embryos for your own purebred herd or to sell domestically and internationally.
- ✓ Recipients - We currently have located breeders with recipients available that can be utilized for your embryo program if needed to increase your ET calf production. Recipients can either be purchased as pregnancies or be used to raise a calf that will enter your herd at weaning. Contact us soon if you can utilize this service, as we are presently scheduling embryos to be transferred.
- ✓ A.I. Programs - Many synchronized protocols are now available, at varied costs, to allow A.I. combined with heat detection, heat detection plus timed A.I. (TAI), or simply using TAI to breed all the females on one day. Review of our 2010 newsletter will outline specific A.I. protocols available. We have new programs for virgin heifers that have recently been showing very acceptable results in addition to our existing cow programs. If you plan on breeding larger groups (50 to 200 head) on TAI, Deb and I can assist you with semen thawing, breeding and record keeping.
- ✓ We are presently working with new protocols and new hormonal drugs that are available for both our donor and recipient programs. You will notice the changes on the new forms we use for donor superovulation and recipient synchronization. One example is a new superovulation product, Stimufol that has tended to increase embryo production. We will be utilizing this product in some of our protocols this year.
- ✓ The international export of embryos continues to be a growing part of our business. If you have personal contacts in other countries or inquiries to buy embryos, we will certainly assist you with planning, producing the embryos, meeting foreign requirements and shipping your embryos.

REPRODUCTIVE NUTRITION

- ✓ Many producers may meet the protein needs of young heifers after calving but fall short in providing adequate energy (TDN). These young females require a diet of 60% to 62% TDN which is may not be provided by a grass/alfalfa hay ration alone. Check with your local veterinarian and nutritionist.
- ✓ After calving, cows and heifers partition energy that they consume to:
 - 1st maintain body condition,
 - 2nd grow,
 - 3rd lactate
 - And finally reproduce!
- ✓ We really need to be “ahead of the game” to achieve breed-backs early in the breeding season, i.e. do not try to bring the cows back into breeding shape during the postpartum interval, have them in condition prior to calving.

- ✓ Balance energy and protein needs of the heifers/cows depending on feed sources available --- too much or not enough of either leads to poor reproductive performance.
- ✓ When heifers are developed in confinement and fed prepared rations, they may be nutritionally stressed when they go to a pasture with only grazing available (and possibly limited or early forage at that). This stress may have females losing weight for three to four weeks which can increase embryo mortality. Possibly early, high moisture pasture can be supplemented with other feeds to maintain growth, body condition and embryo viability.
- ✓ A five study summary, according to Dr. Hilton of Purdue University, indicates that feeding an ionophore (Rumensin) to late-gestation and early lactation cows resulted in a reduction of the anestrous (non-cycling) interval of five to 46 days or at least by one cycle in some instances. Check with your nutritionist for feeding protocols.
- ✓ A recent study at Kansas State University, involving three beef herds looked at body condition score (BCS) at breeding time. Results show a decreased BCS of 4.8 had about 45% less cows cycling and a preg rate of 40% less than the cows with a BCS of 5.2. Think what a larger difference in BCS could mean in reproductive results! At CGI we have experienced this effect with both A.I. and ET recipient cow in some herds.
- ✓ Minerals designed for use during the calving and breeding period (repro-minerals) are suggested with an emphasis on chelated products. Contact us for the companies and products we have worked with in the past. Over the past few years our records, as well as others in our industry, indicate an increased reproductive performance by utilizing injectable MultiMin 90 (zinc, manganese, selenium and copper) at approximately 30 days prior to A.I. or embryo transfer (including both donors and recipients). This included increased fertilization rates, higher quality embryos and a notable decrease in the number of degenerate embryos. Pregnancy rates have been seen to improve in some herds.
- ✓ If breeding cattle are on wheat pasture, a high protein diet, prior to breeding season, it is recommended to move them off the wheat one to two weeks prior to breeding in order to allow for adjustment to a new diet and decrease the blood urea nitrogen (BUN) that can be detrimental to embryo survival.

ESTROUS SYNCHRONIZATION

- ✓ A calving distribution study conducted by the Noble Foundation found that synchronized heifers A.I.'d on the same day had calves born across a span of 28 days with only 14% of the heifers calving on the most active day.
- ✓ If you are using 5-day CIDR synchronization program for cows (not heifers) remember **not** to skip the 2nd PGF injection and administer it at 8 hours after the first PGF which is given at the time of CIDR pull. Then use TAI and GnRH at 72 hours after CIDR pull. Note: this protocol requires one more time through the chute as compared to the 7-day CIDR program.
- ✓ A CIDR estrous synch program has been shown to possibly shift calving in the first 20 days of calving from 20% to 40%!!! A large economic factor related to older calves with increased weight at sale time.

- ✓ We are occasionally asked about re-synchronization of previously TAI cows and heifers. A study conducted at the University of Saskatchewan a few years ago involved the re-synchronization of approximately 800 heifers at various ranch locations. Heifers received a CIDR 13 days after TAI (no injections) that was then pulled 20 days after TAI (no injections). A majority of the non-pregnant heifers exhibited heat over a four day interval and were A.I.'d accordingly with acceptable conception rates. At CGI, we have also successfully worked the same program with cows.
- ✓ Most CIDR synchronization programs today include TAI that does not require heat detection which, as Dr. Cliff Lamb of the University of Florida states, is one of the toughest things for most producers to overcome. Results continue to show that pregnancy rates can be equal to or slightly higher as compared to programs involving heat detection when TAI is managed properly. (At CGI we have seen herds acquire 60 to 70% preg rates.)
- ✓ Calf removal from the cows for 48 to 60 hours (the time between pulling CIDR's and A.I.) has been shown to induce more heats, increase conception rates, decrease labor and show no detrimental effects on the calf. Proper facilities and fencing are important.
- ✓ A CIDR can be used on cows as early as 40 to 45 days post calving to successfully synchronize estrus for A.I. or ET.
- ✓ *Revised 14 Day CIDR Synch Program for Heifer TAI:* At a meeting I attended, Dr. Patterson of the University of Missouri recently reported that this program, designed to be an alternative to MGA, has the following advantages over MGA:
 - can help jump start prepuberal heifers to exhibit heat
 - gives a tighter synchrony of heat
 - overall heat responses are improved
 - eliminates worry of consistent MGA feed intake
 - increases conception rates (some reported near 65%)

Let us know if you are interested as we have updated PGF and TAI administration schedules. A breeder reported using this program on a few thousand heifers with 60+% pregnancy rates being common.

- ✓ At CGI we still recommend the 7-day CIDR program with TAI. Well managed programs see pregnancy rates of 60 to 65% or better.
- ✓ In any CIDR based program do not leave the CIDR in the cow longer than 8 days or fertility at that breeding may be impaired due to poor egg quality.
- ✓ When using a CIDR based synchrony program, take steps to be sure all or most of the cows are cycling prior to the start of the synchrony program. Studies indicate that anestrous cows that were "jump started" to cycle for breeding had a slight decrease in pregnancy rate.

BULLS, SEMEN AND A.I.

- ✓ Occasionally we hear of A.I. versus ET quality semen from a particular bull. You may want to question the "double strength" statement as it may not be of value if the bulls' semen has uncompensable traits. Also, the increased number of cells per straw

decreases the amount of semen extender required for sperm cells to survive freezing and thawing. Fertilization results may not be worth the added cost per straw of semen.

- ✓ When attempting to genetically select for reproductive traits (such as 1st service conception rates, calving interval, heifer pregnancy rate, etc.) to increase reproductive efficiency, remember that these traits are lowly heritable, therefore, improvement is a very slow process and also requires management factors such as early breeding and rigorous culling of opens and late bred.
- ✓ A breeding soundness exam of bulls (BSEB) should always be conducted each year one to two months before breeding turn out. Every year we learn of producers who have found non-breeding bulls that were not re-examined since the last BSEB conducted one or more years prior - a terribly costly oversight in pregnancy loss! A thorough and complete exam should include semen evaluation for volume, color, motility and morphology, a rectal palpation of the seminal vesicles and an external exam of the testicles (including the epididymis), scrotal circumference, penis (no adhesions) and prepuce for any abnormalities. Also, remember to check BCS (not too fat!), feet, legs and general mobility of the bull as he moves about.
- ✓ All new bulls and bulls that may have been exposed to cows outside your breeding herd should be tested for Trichomoniasis (trich). Ask for the new PCR test that provides a very specific DNA diagnosis of the trich organism. This disease is becoming increasingly costly through abortions and an increased number of open cows in an infected herd. The disease can be controlled through management and a vaccination program.
- ✓ Recently it has been shown that heifers seen in heat had an increased pregnancy rate when A.I.'d with sexed semen 16 to 24 hours (versus 12 to 14 hours) after first standing heat. More studies are underway. Note: Sexed semen used to breed donor cows for ET also requires a different breeding protocol than donors being bred with conventional semen. Contact us for the protocol.
- ✓ It is still recommended to use a heat detection A.I. program when utilizing sexed semen. Research continues in attempts to identify a proper synchronization protocol for TAI. Sexed semen is packaged in ¼ cc straws and is very sensitive to cold shock after thawing so use proper techniques and keep A.I. guns warm. Remember, you will need a ¼ cc A.I. gun specifically for these straws.
- ✓ Mistaken placement of the A.I. gun tip in the cervix has been reported to occur in more than 20% of inseminations that were intended for the body of the uterus! Be aggressive enough to be sure you are depositing the semen in the uterine body.
- ✓ Studies continue to show that A.I.'ing 6 to 16 hours (12 hour rule) after first standing heat yields the highest percentage of high quality viable embryos.
- ✓ In an A.I. program gomer bulls do assist in heat detection, advance puberty in heifers, and tend to promote an earlier return to estrus in postpartum cows (possibly 21 to 30 days earlier). The male influence through sexual pheromones is the key.
- ✓ In a recent article by Dan Moser of Kansas State University, he reminds us that birth weight is one of the more heritable traits in beef cattle. Therefore, he suggests selecting bulls with higher EPD's for both calving ease and maternal calving ease to best minimize calving difficulty.

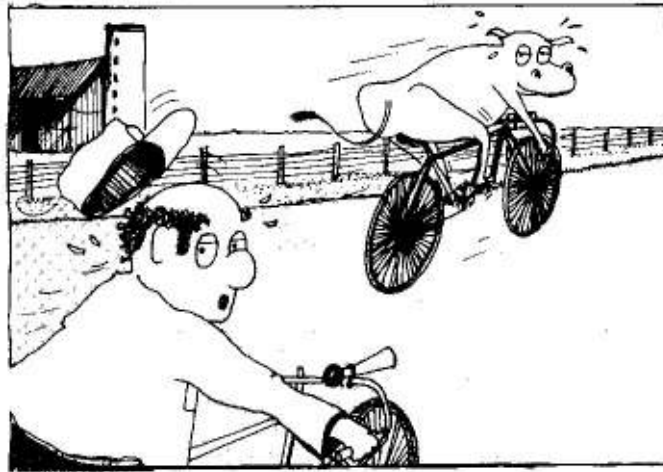
- ✓ *Caution in Handling Semen!!* At a temperature of -110°C, the temperature in the neck of a semen tank, ice crystals within the straw begin to change that can cause sperm damage. At the top of the neck, damage will occur in less than 10 seconds and this is cumulative so it adds up each time you pull the cane up to that position. Be sure to keep your tank as full of liquid nitrogen as possible in order to decrease semen damage while working an A.I. program. **Always** keep the canisters below the frost line in the neck of the tank when removing straws!!! At CGI we use a small dewar for handling semen during breeding. Give us a call for details or further guidance.

DISEASES, TESTING AND VACCINATIONS

- ✓ Once a vaccine bottle is opened (after checking the expiration date!) it should be stored at 35-45°F and be used within 10 to 12 hours. **Do not** keep a partial bottle until the next day.
- ✓ Igenity has recently announced a DNA profile test for replacement heifers that analyzes 5 economically important traits for \$20.00 per head.
- ✓ Vaccinate all breeding females, including donors and recipients, at least 30 days prior to breeding or embryo transfer. Some vaccines that induce an inflammatory response may be detrimental to conception and maintenance of the pregnancy. The IBR component of vaccines may cause deterioration of the CL on the ovary resulting in a loss of pregnancy.
- ✓ Lepto Hardjo-bovis is a reproductive disease that continues to draw attention through reports of decreased preg rates, increased embryonic death and infertility. Diagnosis is often difficult, but detection of early pregnancy loss, good breeding and calving records along with blood tests can be helpful. A vaccine, Vira Shield 6+ VL5 HB is an effective control for replacement heifers, pregnant cows, calves and nursing pregnant cows.
- ✓ Pfizer Animal Health recently announced the availability of their E. coli vaccine to reduce E. coli 0157 prevalence in feedlot cattle. Check with your veterinarian for more information.
- ✓ Calves that are persistently infected with BVD (BVD-PI) are infected with the virus between days 20 and 150 of pregnancy but never develop antibodies against the disease and therefore become lifetime carriers and shedders of the virus. This shed virus can also be carried to other cows via contact with vehicles, equipment, boots or clothing -- something to consider when controlling this disease.
- ✓ There are 2 types or strains of BVD, type 1 and 2, and most common vaccines include both. Check yours to ensure the best protection. Remember to booster all breeding age cows and follow manufacture's recommendations for vaccinating replacement heifers at two separate intervals.
- ✓ Some research indicates that 90-95% of PI calves do not have PI dams ... a point to be considered in herd surveillance programs.

ODDS AND ENDS

- ✓ Research by Chris Reinhardt of Kansas State University indicates that calves that receive inadequate passive immunity through poor quality or insufficient amounts of colostrum are:
 - Six times more likely to die within the first 28 days of life
 - Three times more likely to get sick before weaning
 - Five times more likely to die before weaning
 - Three times more likely to get sick in the feedlot
- Calves require colostrum by 6 to 10 hours after birth for best absorption of immunoglobulin's (a specialized form of antibodies) from the small intestine.
- ✓ Early weaning, near five months of age, when forage quality may be inadequate to support continued lactation, may prevent up to 100 lbs. of lost body weight in a cow that is approaching winter. Note: a calf's rumen is functional by approximately three months of age and is capable of adapting to a prepared ration.
 - ✓ Temple Grandin of Colorado State University listed some distractions to cattle that you may want to check out around your chute and working facilities:
 - Contrast of light and dark
 - Reflections on water and metal
 - Moving objects near the chute
 - Changes in ground or floor type
 - Dangling chains (often butt gates)
 - ✓ A study to compare early, middle or late insemination times using Heat Watch, an electronic heat detection system, to determine the time of first standing heat, did not detect an effect of sex ratio of resulting calves.
 - ✓ Most all breeders are aware of encouraging daytime calving by feeding cows in the evening. A study done by Oklahoma State University switched supplement feeding to late afternoon/early evening which resulted in 72% of the cows calving during daylight hours. Also, small herds may accomplish the same results by allowing cows to feed on large hay bales at night within a fenced enclosure and then closing the gate to force cows to winter pasture during the day.
 - ✓ A new cattle blood collection kit, TEGO, was shown at the NCBA meeting in Denver. Seems easy to use and provides security to decrease the possibility of contamination between samples as they are collected for lab analysis. More information at www.itlanimalhealthcare.com
 - ✓ To decrease early embryonic death in recently A.I.'d cattle, it is recommended in many studies to transport the females between days 1 and 4 after breeding.
 - ✓ MultiMin 90 given to young calves at birth and weaning can increase immunity and assist vaccination protection against calfhood diseases. I am told that studies being completed this year will provide data that support this finding.



SOMETIMES IT'S VERY DIFFICULT
TO CATCH A CYCLING COW !

“If that body (Congress) be ignorant, reckless and corrupt, it is because the people tolerate ignorance, recklessness and corruption.” President James Garfield