

EFFECTIVE REPRODUCTIVE MANAGEMENT RELIES ON SOUND MEASUREMENT

By Dr. Mark Kirkpatrick, DVM, Pfizer Animal Health

Dairy producers know that each day a cow is open costs them money. They can experience a \$1 to \$3 per day loss¹ in milk production and will incur increased feed costs, increased culling risk and reduced number of herd replacements as days open increase. To measure a breeding program's success and keep a dairy operation profitable, producers need to implement a sound reproductive management program.

Dairy producers often rely on perceptions and instinct when analyzing herd reproduction. However, relying on those factors alone can lead to an inaccurate view of herd reproduction management.

Success and sound measurement begin with dedicated management

A solid management program begins with dedicated and knowledgeable managers who are motivated to implement and maintain a system that defines:

- What has to be done
- By whom
- Why it has to be done
- How it will be done (standard operating procedures)
- What is not acceptable

Managers who recognize the importance of good performance usually have an understanding of the losses in potential income that occur when pregnancy rates (PR) are low and culling rates high.

Pregnancy Rate: Effective Reproductive Measurement

The dairy industry has several reproductive measures, most based on 12-month averages. *These include:*

- Days open
- First service conception rates
- Calving interval
- Days to first service
- Reproduction cull rates

These classic measures are severely hampered by momentum (the effects of cow history) and lag (the time it takes to accomplish and monitor these values). PR is a relatively new concept that measures the percentage of eligible cows that become pregnant in a 21-day period. It can also be calculated by multiplying heat detection rate by conception rate. By taking account of these factors PR becomes one of the most honest and relevant measures of reproductive outcomes. Observing the PR on a cohort basis removes the effect of momentum, and allows producers to spot trends as they occur, plus it provides the earliest results of reproductive interventions. PR improvement in the first 21 days (first cycle) after the VWP is very important as it sets the stage for the success of the entire reproduction management program.

On a national level, the average herd PR falls in the 10 to 15 percent range. A PR rate of 30 to 40 percent for a single cohort of cows within the first 10 days after the VWP can be an achievable goal if management is intense and dedicated. To reach a 40 percent cohort PR goal, managers need to focus on other factors that affect pregnancy outcomes besides breeding. Those other factors include fresh cow management, environment, disease, nutrition, and lameness.

100-Day ContractSM Dairy Wellness Plan

The 100-Day ContractSM program is a revolutionary dairy management program created to optimize early pregnancies. The program focuses specifically on managing cows during the critical 30 days prior to calving through 70 days postpartum.

As producers use the 100-Day Contract principles, they realize the need to look at a multitude of factors such as: following 10-day temping guidelines for fresh cow monitoring; preventing clinical mastitis; feed ration management and cow comfort.

Since the program establishes cohorts of cows for evaluation (i.e. cows calving every week, two weeks or month) factors are compared group-by-group over time. The program also allows management to see changes more rapidly during the critical dry and fresh periods.

It is absolutely critical to evaluate performance based on facts, not just observations or past experience. With the 100-Day Contract program, producers are seeing more pregnant cows, more milk and more profits.

For more information about the 100-Day Contract program, visit www.100daycontract.com.

LUTALYSE[®] brand of dinoprost tromethamine sterile solution

For intramuscular use for estrus synchronization, treatment of unobserved (silent) estrus and pyometra (chronic endometritis) in cattle. CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS AND INSTRUCTIONS FOR USE

- LUTALYSE Sterile Solution is indicated as a luteolytic agent. LUTALYSE is effective only in those cattle having a corpus luteum, i.e., those which ovulated at least five days prior to treatment. Future reproductive performance of animals that are not cycling will be unaffected by injection of LUTALYSE.
1. **For Intramuscular Use for Estrus Synchronization in Beef Cattle and Non-Lactating Dairy Heifers.** Inject a dose of 5 mL LUTALYSE (25 mg PGF_{2α}) intramuscularly either once or twice at a 10 to 12 day interval. With the single injection, cattle should be bred at the usual time relative to estrus. With the two injections cattle can be bred after the second injection either at the usual time relative to detected estrus or at about 80 hours after the second injection of LUTALYSE. Estrus is expected to occur 1 to 5 days after injection if a corpus luteum was present. Cattle that do not become pregnant to breeding at estrus on days 1 to 5 after injection will be expected to return to estrus in about 18 to 24 days.
 2. **For Intramuscular Use for Unobserved (Silent) Estrus in Lactating Dairy Cows with a Corpus Luteum.** Inject a dose of 5 mL LUTALYSE (25 mg PGF_{2α}) intramuscularly. Breed cows as they are detected in estrus. If estrus has not been observed by 80 hours after injection, breed at 80 hours. If the cow returns to estrus breed at the usual time relative to estrus.
 3. **For Intramuscular Use for Treatment of Pyometra (chronic endometritis) in Cattle.** Inject a dose of 5 mL LUTALYSE (25 mg PGF_{2α}) intramuscularly. In studies conducted with LUTALYSE, pyometra was defined as presence of a corpus luteum in the ovary and uterine horns containing fluid but not a conceptus based on palpation per rectum. Return to normal was defined as evacuation of fluid and return of the uterine horn size to 40mm or less based on palpation per rectum at 14 and 28 days. Most cattle that recovered in response to LUTALYSE recovered within 14 days after injection. After 14 days, recovery rate of treated cattle was no different than that of nontreated cattle.

Management Considerations: Many factors contribute to success and failure of reproduction management, and these factors are important also when time of breeding is to be regulated with LUTALYSE Sterile Solution. Some of these factors are:

- a. Cattle must be ready to breed—they must have a corpus luteum and be healthy;
- b. Nutritional status must be adequate as this has a direct effect on conception and the initiation of estrus in heifers or return of estrus cycles in cows following calving;
- c. Physical facilities must be adequate to allow cattle handling without being detrimental to the animal;
- d. Estrus must be detected accurately if timed AI is not employed;
- e. Semen of high fertility must be used;
- f. Semen must be inseminated properly.

A successful breeding program can employ LUTALYSE effectively, but a poorly managed breeding program will continue to be poor when LUTALYSE is employed unless other management deficiencies are remedied first. Cattle expressing estrus following LUTALYSE are receptive to breeding by a bull. Using bulls to breed large numbers of cattle in heat following LUTALYSE will require proper management of bulls and cattle.

WARNINGS

Not for human use.

Women of child-bearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this product. In the early stages, women may be unaware of their pregnancies. Dinoprost tromethamine is readily absorbed through the skin and can cause abortion and/or bronchospasms. Direct contact with the skin should, therefore, be avoided. Accidental spillage on the skin should be washed off immediately with soap and water. Use of this product in excess of the approved dose may result in drug residues.

PRECAUTIONS

Do not administer to pregnant cattle unless abortion is desired. Do not administer intravenously (I.V.), as this route might potentiate adverse reactions. Cattle administered a progestogen would be expected to have a reduced response to LUTALYSE Sterile Solution. Aggressive antibiotic therapy should be employed at the first sign of infection at the injection site whether localized or diffuse. As with all parenteral products careful aseptic techniques should be employed to decrease the possibility of post injection bacterial infections.

ADVERSE REACTIONS

1. The most frequently observed side effect is increased rectal temperature at a 5X or 10X overdose. However, rectal temperature change has been transient in all cases observed and has not been detrimental to the animal.
2. Limited salivation has been reported in some instances.
3. Intravenous administration might increase heart rate.
4. Localized post injection bacterial infections that may become generalized have been reported. In rare instances such infections have terminated fatally. See PRECAUTIONS.

▶ **IMPORTANT:** No milk discard or preslaughter drug withdrawal period is required for labeled uses. ▶

DOSAGE AND ADMINISTRATION

LUTALYSE Sterile Solution is supplied at a concentration of 5 mg dinoprost per mL. LUTALYSE is luteolytic in cattle at 25 mg (5 mL) administered intramuscularly. As with any multidoose vial, practice aseptic techniques in withdrawing each dose. Adequately clean and disinfect the vial closure prior to entry with a sterile needle.

STORAGE CONDITIONS

Store at controlled room temperature 20° to 25° C (68° to 77° F) [see USP].

HOW SUPPLIED

LUTALYSE Sterile Solution is available in 10 and 30 mL vials.

For a copy of the Material Safety Data Sheet (MSDS) or to report adverse reactions call Pfizer Animal Health at 1-800-366-5283. Revised August 1996

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¹ Dr. Patrick D. French, Oregon State University Department of Animal Science, Dr. Raymond L. Nebel, Virginia Tech Department of Dairy Science. Reproductive Program Cost Calculator. V. 1.1. 2003