A HERD REPRODUCTIVE HEALTH PROGRAM

by

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Low breeding efficiency is a major problem in dairy cattle management. The consequences of low fertility are difficult to quantitate precisely, but gross income is reduced as a result of lower milk production, fewer calves and decreased herd improvement potential. The need for additional replacements, veterinary services, medication and repeat service adds to input costs.

One of the indices of fertility is the calving interval. Long calving intervals result in low milk production. For each month added to the calving interval the calf crop is reduced 8.33%. Interestingly enough, the calving interval, or days open, is not calculated for cows with serious problems which never conceive again. A second insidious factor is that today's mistakes are not charged until 10-12 months later, or 2-3 years later when it comes to replacement heifers.

Delayed first services are a primary cause of a poor fertility status. Most of these are due to failure to detect heat. We further know that conception rates are reduced after long cycles, short cycles and such conditions as retained placenta and severe uterine infections. Most dairymen are aware of these problems but have difficulty in coping with them. Large herd owners must concentrate on their breeding program more than small herd owners if they expect to achieve breeding efficiency. Even in large herds individual cow decisions need to be made.

Management of the breeding program requires team work by the herdsman, the inseminator and the veterinarian, and the systematic approach of a fertility control program. The purpose of a dairy herd fertility control program is: 1) to raise the first-service conception rate, 2) to decrease the number of services per conception, and 3) to decrease the calving interval. Essential components of any fertility program are, easy identification of individual cows, individual records and effective heat detection. In addition there must be adequate facilities for rectal and vaginal examination of the cows. It should be remembered that the percentage of calves born after on insemination of a group of cows, is the product of several factors including the fertility of the herd, management of the herd, quality of the semen used and the efficiency of the inseminator. This product is always lower than the lowest factor involved. Much of it comes back to such basics as sanitation at the time of calving, disease control, nutrition and heat detection.

Initiation of a new fertility program usually starts with a complete rectal inventory of the entire herd to establish a baseline. The frequency of subsequent visits depends on the herd size. Herds with 50 - 100 cows are visited every 4 weeks, 100 - 200 cows every 3 weeks, 200 - 400 cows every 2 weeks and herds with more than 400 cows weekly. Prior to each visit by the veterinarian, the manager selects all the cows in the following three categories: 1) cows fresh 30 days, 2) cows bred 40 days previous which have not returned to
heat, and 3) problem cows. The latter includes all cows that had difficulty in calving, cows with retained placenta, cows with abnormal vaginal discharges persisting after two weeks postpartum and cows with irregular cycles. Each cow is examined per rectum and the findings are recorded. I prefer to record the measurements of the diameter of the cervix and each of the horns, the tone of the uterus and the ovarian activity, be it a corpus luteum or a follicle. For cows with a history of no heats the approximate day of the cycle is recorded. A vaginal examination is done on all postpartum cows after thorough washing with soap and water. Any vaginal, cervical or uterine discharges are noted and again recorded. Treatment is given as indicated. Any cow which is treated is marked down for a recheck at the next visit. This system allows for early recognition and disposition of breeding problems. Reproductive culls, for instance cows with extensive adhesions of the uterus, are identified and no further effort or semen is expended on them. This saves labor and later feed costs. The program permits early breeding on the first heat after 45 days postpartum of all cows that pass the postpartum check.

One of the keys to success of the program is that the examinations be conducted on a regular basis on a specific day of the week, that the manager have the cows ready and that the veterinarian is on time.

Last year, the California Milk Advisory Board commissioned Dr. John W. Kendrick of the University of California, Davis to conduct a study of the cause, prevention and treatment of uterine disease. This study included 3,582 cows on nine dairies ranging in size from 135 – 800 cows. Each dairy had a reproductive program similar to the one outlined above. At 30 days after calving each cow was placed in one of three groups according to the condition of the uterus. Group A, Normal uterus; Group B, Moderately affected with endometritis. The diameter of the large uterine horn in these cows was between 30 and 40 mm and there was a 5 to 10 mm difference between the large and small horn. There was evidence of a small to moderate amount of pus in the vagina. After Group B cows were identified by the practicing veterinarian, they were randomly assigned to a treatment and control group. Those placed in the control group were not treated while those in the treatment group received a single intra-uterine infusion of antibiotics. Group C, Severely affected. The large uterine horn was greater than 40 mm in diameter and there was 5 mm or more difference between the two horns, the tone of the uterus was abnormal and in some cases, fluid could be palpated in the uterus. There was evidence of a purulent discharge from the vagina which at times was copious and had a bad odor. These cows received several intra-uterine infusions with antibiotics. For the study, all cows remained in the group to which they were originally assigned.

The summary of the findings and conclusions were:

1. Cows with severe uterine infection have lower fertility and treatment commonly used do not return fertility to normal in these cows. Treatment may improve fertility in these cows but this experiment was not designed to show this.

2. Cows with moderate uterine infections are difficult to accurately diagnose, have the same fertility as normal cows whether treated or not, but do include some "problem cows" that do not conceive within 150 days of calving.

3. Penicillin is the most effective antibiotic for the treatment of bacteria found in the uterus. Terramycin is also effective but a higher
concentration is necessary. Both penicillin and terramycin appear to maintain therapeutic levels in the uterus for 24 hours when used at the currently accepted dosage. Some uterine bacteria were resistant to furacin and all uterine bacteria were resistant to dihydrostreptomycin.

4. Treatment at 24 hour intervals is necessary to maintain therapeutic levels of antibiotic in the uterus.

5. Crystalline penicillin at doses used in the experiment appeared in the milk within 20 minutes. It was present in the milk in low levels three to six hours after treatment in seven out of 56 cows and was not detected 15 to 18 hours after treatment in any cows. Procaine penicillin at a dose level of 1,600,000 I.U. was found in the milk of one of 50 cows three to six hours after treatment and not found in the milk at any time when a dose of 1,000,000 I.U. was used. Terramycin and dihydrostreptomycin were not detected in milk.

These findings once again suggest that uterine infections need not be a major cause of infertility in cattle. Effective and efficient fertility control is possible with a systematic approach and a constant surveillance.