

me among my own clients how very little these dairy men know about what a heat looks like. For example, it is not uncommon to tell a dairy man than an animal in receptive heat will never lie down—it never occurred to him! They are always standing and, furthermore, they are hyperalert. They will just snap the stanches to turn over and watch you go by them. They are excitable when you work with them; they don't stand still like a docile, contented cow—they are bouncing around, but I do not mean to extend this to you as information that you do not know. I think that too often we work with problems that become so mundane and commonplace as anestrus, that we fail to convey to the owners some of the very simplest and most effective aspects of the problem that would help them out.

The last item that I wish to mention to those people that have difficulty predicting heat

accurately or who do not feel very confident about it, is the use of heat indicators. It is a very, very effective approach in my estimation to make your rectal evaluation, predict the heat and then at a point of three, or four, or five or six days, depending upon how accurate you feel about your prognostication, have the owner apply a heat indicator. This, I think, is invaluable. For one thing you know it is an interesting point that these owners will complain to you that their animals are going through silent heats. You examine them and find that they are cycling and prognosticate and miss it by a mile. They jump all over you and you just have to come back with the same thing! You are right, those heats are silent but there is one thing about the indicators which is very helpful, especially when you are beginning your prognostication. If you happen to miss it and he starts to lose his attentiveness toward that animal, he can pick it up with the indicator a little later on.

Medications and Hormones For Reproductive Problems

RICHARD C. KORITANSKY, D.V.M.
Fond du Lac, Wisconsin

The following comments are on reproductive therapy used by five herd health oriented practices in Northeastern Wisconsin (1). New developments such as Prostaglandin and Gonadotrophic hormone releasing factors may be interesting products for the near future, but as yet, we must deal with the present.

I do not believe in hormones and reproductive treatments if ideally we are communicating with our dairy partner clients. However, everything is not ideal. But it is our feeling that proper nutrition and reproductive health management reduces reproductive complications and increases reproductive efficiency and income for the dairyman.

Metritis will be simply defined as occurring within 2-3 weeks postpartum. Our experience shows a decreased incidence with proper handling of retained placentas, plus good management on the part of the dairy man. Treatment regimes are as follows:

1. Infusion of 1-3 grams of TETRACYCLINES in 300-500 cc of water.

2. Infusion with HYDROGEN PEROXIDE plus the IM injection of 10-20 mg DIETHYL-STILBESTEROL.
3. Infuse 500 cc of the following solution: one gallon Triple Sulfas of Sulfamethazine; 1½ tsp of Neoprontosil Powder; 500 cc alcohol; 5 gm Tetracycline; 10 mg Aqueous Estradiol.
4. Supportive therapy with the above, plus draining the uterus, etc.
5. Nutrition—comments will follow later in this paper.

Endometritis or Purulent discharge defined simply as uterine infection detected on herd exams over two weeks postpartum. Several practitioners feel that any cow discharging over two weeks needs treatment. Treatment is done both to increase reproductive efficiency plus quickly reach maximal milk producing potential. Therapy as follows:

1. Infusion of 100-200 cc of NFN solution (a) NFN solution, 1½ tsp Neoprontosil Powder, 20 gm Neomycin, 1 gallon Furacin.

2. 60-70 cc Furacin Penicillin interuterio (a) 100 cc Penicillin Q.S. with Furacin to 500 cc.
3. Infusion of 100-150 cc Furacin or 50-60 cc PenStrep. With subenvolution use 5 cc (5 mg/cc) of estrogen with the above infusion but be careful to use it early as it may delay estrus when used later on in the postpartum period.
4. 2½ gms Polyotic Q.S. in 350-500 cc very hot water interuterio. The volume stimulates estrus plus the acidity of the Tetracycline and hot water is similar to a D&C in humans.
5. Infusion of 40-120 cc LUGOLS and Glycerine. This treatment stimulates some similar actions as No. 4, above. (a) ¼ Lugols, ¼ Glycerine, ½ Water.

Pyometra seldom seen on a herd health managed herd. Therapy methods:

1. 20 mg Stilbesterol repeated 3-4 days with a follow-up infusion of NFN solution.
2. 10 mg ESTROGEN IM plus intrauterine antibiotics.
3. 8-10 mg ECP followed by 5 cc Oxytocin given by the dairyman the next day. Follow-up with an infusion in two weeks. There appears to be a problem of massive uterine irritation in a few cases with immediate uterine infusion.
4. 10 mg ECP or 20 mg Stilbesterol given IM followed by an infusion in 7-14 days. Clinically, low levels of estrogens appear to work much better than higher doses.

Sloppy Uterus Syndrome is a condition I see in the 30 day plus postpartum period and based primarily on clinical impressions. It is defined as a sloppy, doughy feeling uterus found in several cows on monthly pre-breeding examinations. Lack of tone or subenvolution might better define the condition. Normal functioning ovaries are palpated but a large number of cows are either not demonstrating signs of estrus or are repeat breeders.

Table 1
Levels Commonly Seen with Sloppy Uterus Syndrome

Cow No.	Calcium mg%	Ca:P	Phosphorus mg%
13	14.50	2.26:1	6.40
32	9.00	1.02:1	8.75
43	8.00	.91:1	8.75
47	6.50	.83:1	7.80
51	8.00	1.02:1	7.80
61	13.00	1.91:1	6.80
67	7.25	.90:1	8.00
68	13.00	1.91:1	6.80
73	6.60	.81:1	7.30
Normal Range	9-12		4-7

Problem cows generally are being fed 20 lbs. or more of shelled or high moisture corn on a dry matter basis. Numerous metabolic profiles which include calcium and phosphorus levels on tail venous and arterial blood samples appear to show a trend as shown on the example herd in Table 1. Cow numbers 13, 61, and 68 were lower producing cows in the last 2/3 of lactation. They were used for comparison. One should note the low calcium and high phosphorus levels plus the blood ratio of calcium to phosphorus.

Feed analysis on the herds indicate calcium levels below or equal to NRC(2) minimum requirements. Discussions with several university and consulting nutritionists plus the apparent inability of the cow to absorb more than 65-75% of her natural calcium intake led to the following way of handling the problem. Force intake of calcium in the complete ration at the rate of twice NRC minimum requirements and phosphorus at the rate of 50% more than NRC requirements. Dicalcium phosphate, steamed bone meal and calcium carbonate alone or in combination are used to balance the ration.

Precautions include slowly raising the mineral content in the ration over a two week to one month period. Under Wisconsin conditions the mineral is either mixed in the protein concentrate (with 5% molasses) and force fed on top of the grain mixture according to production or top dressed on the haylage and/or silage in the feed bunk. Free choice feeding only partially alleviates the problem in about 65% of a herd, therefore is not fully acceptable. However free choice consumption of one of the above minerals may, for a short time, demonstrate the problem to a dairyman. Total required grams of calcium and phosphorus in the daily ration is much more important than ratio of calcium to phosphorus for the lactating dairy cow.

Low blood phosphorus in relation to calcium as shown as the example herd in Table 2 appears to lead to a higher incidence of retained placentas, metritis and endometritis. Cows in this example herd were getting twice NRC requirements of

Table 2
Levels Commonly Seen with Metritis and Endometritis

Cow No.	Calcium mg%	Phosphorus mg%
7	14.50	4.30
16	12.00	4.00
37	13.50	3.90
54	13.25	4.50
12	14.00	4.20
14	13.00	4.30

calcium, but the phosphorus levels were right at NRC minimum requirements. Additional phosphorus at the above recommended levels was followed by a decrease in large numbers of metritis and endometritis. Remember to work with both a dry cow and lactating cow ration.

The above comments are only clinical impressions as it is difficult to run controls in the field both because of time factors and changing conditions in commercial Wisconsin dairy herds. Comments will be greatly appreciated.

Anestrus is not really a problem except possibly in a high producing herd or a herd on a negative energy balance. Most problems are actually silent heats and the veterinarian can best help the dairyman by correcting management practices and predicting heats on problem cows with regular herd checks.

FSH is used on big fat 16-18 month old heifers.

Silent Heat Aids probably most affect is on the farmer not the cow.

1. Thyroid tablets 5 gr daily 5-7 days prior to predicted heat.
2. Clovite plus organic iodides.
3. ADE.
4. Combinations of the above.
5. Progesterone in oil 100 mg daily for seven days and breed on the fourth day blindly or when cow shows heat.
6. Expression of an easily expressed CL as long as a nice follicle is present, then breed blindly on the fourth day.

Anemic cows often have silent heats or are repeat breeders. A packed cell volume below 30% can easily be run on a microhematocrit and is indicative of anemia. The use of iron injections, B12, or Pennsylvania's recommended anemia mineral mix are aids. However, spectrographic analysis of the feeds for trace minerals followed by balancing the complete ration is most beneficial. Selenium and Vitamin E so necessary in the enzyme systems for hematopoieses should also be evaluated in certain areas.

Cystic Follicles and Luteal Cysts are treated as follows:

Routine Cysts

Within 45-60 days postpartum most cysts are not treated. Chorionic gonadotropin can be used on known problem cows. Many veterinarians may rupture the cysts if they rupture easily but this is usually out of force of habit.

Refractory Cysts

1. Chorionic gonadotropin 5,000-10,000 IU
2. Follutein 5,000 units
3. Vetrophin second time or following year.
4. Drain cystic fluid through the vagina and treat with VETROPHIN. Drainage apparatus - 50 cc syringe, rubber tubing and a 1 inch disposable 16 ga. needle.
5. 1,000 units chorionic gonadotropin IV and if the cow shows heat in 12-16 days or around the 21st day go back, retreat and breed.
6. 2,000 units chorionic gonadotropin injected directly into the cyst via the vagina.
7. Progesterone in oil 100 mg daily for 12-14 days and breed when the cow shows heat.
8. Thyroid hormone (Protomone) fed to fat, long term, open, high producing cows at the rate of 13 grams (one tablespoon) protomone) daily for a long period plus hormone therapy as above may have some benefit.

Repeat Breeders most often are checked within 12-48 hours after breeding. This procedure checks for proper ovulation, uterine tone, and abnormal discharges. Cows with the follicle still present are given 10,000 IU Chorionic Gonadotrophin and rebred.

Post Breeding Infusions

1. 5 cc PenStrep in 50 cc water
2. Furacin Penicillin 60 cc
3. 5 cc PenStrep in 20 cc Saline
4. 2 cc Lincocin in 23 cc Saline
5. Nolvasan Suspension

References

1. Treatment recommendations were given with the aid of the following Northeastern Wisconsin Veterinarians: Darrel Johnson, Roger Meads, P. J. Oberhauser and Ray Plue. - 2. Nutrient Requirements of Dairy Cattle, 4th ed., 1971 National Academy of Sciences.