

# Reproductive Diseases (Dairy Section)

Dr. Roger Meads, Chairman



## Diagnosis and Treatment of Anestrous

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Mr. Chairman and fellow veterinarians—it is nice to be back here after a few years and I remember the last time I was here we interrupted my presentation to watch the Green Bay Packers at the Super Bowl! I am going to comment on anestrous.

I have been in quest of this problem for better than two decades and what have I drawn? I have drawn a blank! Now, before stopping at this point which would probably be the most appropriate thing to do, I would like to go through some of the thinking which I am sure you and I have gone through before coming to a conclusion. First of all, I think we should agree on a definition or definitions of the problem because, as I see it and as you see it in practice, anestrous is a diagnosis made by your best friend, your client. Quite often anestrous is diagnosed without any reservations in our eagerness to comply with his desires to treat the cow. As far as anestrous is concerned, I think it is not the *absence* of heat—it is the absence of noticed or recorded heat! Next, I think we should also consider that there are two types of anestrous. We are dealing with two categories of cattle and one is where anestrous or heat is not observed prior to planned service. That is the lactating cow without prerecorded heat and also the heifer which

has reached the age and weight for breeding but without recorded heat. That is one group, and quite customarily we limit ourselves to one particular group when talking about anestrous. We are also dealing with another category which is much larger; that is, we have found heat. So, we deal here with two groups of cattle and both of them are quite important because of the incidence of this particular problem. I have compiled some data from people in Louisiana, Wisconsin, Missouri and also from our own population in Minnesota. The second group where the postservice anestrous calls represent a much larger population. A 59% incidence stems from around Milwaukee. Data is still coming in from Washington State and you also have data from Minnesota and Wisconsin and as you can see, post-service anestrous is found in at least 40% of cows—at least so practically every other bred cow can be expected to belong to this category. I am not going to take up your time in estimating the losses due to anestrous but I would like to take a look at just what happens to this animal which is reflected by those two months of anestrous. First of all, we have a delay in parturition and we have a loss of production because of this delay. We have also reduced rate of replacement production because less replacements are

produced per year with an increase in maintenance costs and also increased depreciation. Now, with that in mind you can understand the eagerness and the impatience with which our clients come to us.

What can we do? Surely, treatment of one and forgetting the other is not going to help. We are not treating the right man or I mean right body. In order to gain some time and also make up one's mind we should follow a clinical approach to anestrus by examinations of the animals, which is done in the hope of detecting some evidence that the animal is truly not showing heat and all the blame can be put on that particular animal. While we are doing that we should evaluate management practices. There are some other things that might interest us such as nutrition, breed, etc. Nevertheless, this clinical approach must be followed in all cases. I said clinical examination is conducted to detect those animals that are truly anestrus and again I can simplify the list of conditions which could be suspected as being true causes of anestrus. First of all *pregnancy*. This again is a very potent condition. Let us remember, however, a good observation of early pregnancy will yield about 67% or even higher percent of cows being in heat.

*Cystic ovaries*—my colleague and friend is going to talk about ovaries so I am not going to deal with it. We have been using the term *organic anestrus*. Before going farther I would also like to talk about the persistent corpus luteum because its frequency as mentioned in the literature is declining rapidly—there are still people who talk about retention of “the yellow body” as the most prominent cause of anestrus in a cow. The persistent, free-standing yellow body is indeed very rare. In more than two decades I found only one! So, we talk here about organic versus functional anestrus. If organic anestrus, a clinical examination does reveal the presence of anatomical changes indicating that the animal is truly anestrus and not cycling. For the remaining time we could talk about functional anestrus. Now the problem has not diminished because in our observation only about 10% of all anestrus cases belong to the category of organic anestrus. Nine out of 10 cows which are presented to us with a problem of anestrus are actually cycling. Then again we are facing a dilemma. Is the animal showing signs of heat and the observer missing these signs of heat or is it the other way around? The answer is needed and needed urgently. I do not have any answers so now let us see what we can consider here. I think since we are talking philosophically about the anestrus cow we should consider that all cows,

like all human beings, worry and I think also there is variation in the intensity of heat signs. The other possibility is inadequate observation of heat and probably the most prevalent. We should consider that there are certain factors influencing the intensity of heat or sexual desire, such as different cow variation as you and your clients can witness, age difference, production level, nutrition level, season, etc. Most of these factors are known to our clients and we should also remind them of them. Now, silent heat. Is this a myth or is this something that definitely occurs? To those who believe in solid heat I can say that I agree that silent heat does exist.

How do you explain to a client or his agent (the herdsman) that his observation is inadequate? This is a charge which is very serious as far as his profession and reputation are concerned. On the other hand, we have to explain this to the client or herdsman in the least painful way—in a very tactful, diplomatic way conversationalwise. The insufficient daily observation periods are well documented—there is no question about it, and I think that they may also say that up in Wisconsin and Minnesota where in winter we go down to zero temperature for several days in the week and for many weeks in the winter. Another factor that truly exists, and particularly up here in the Midwest, occurs where the people who want to stay in dairy are increasing the sizes of the herds and their land holdings and tillable land to produce food, foliage and feed for their cattle without increasing the size of the labor force. When he should be observing his cows he has to do something else—clean the barn or some milking machines, eat breakfast, etc.

Another factor is ignorance of heat signs. Very recently I read a paper by Williamson and his co-workers and that paper reminds us of how little we know about signs of heat. We are veterinarians and if we do not, who does? Failure to record observations? This is another thing. It is difficult to catch a cow in heat as a client says but the thoughtless use of records and recording observations make the task more difficult. Again, there is the factor of negligence which we see particularly in larger herds. It is seen and observed mostly over weekends and since the weekends are two days which are almost 1/3 of the week, or 1/3 of the month, or 1/3 of the year, you can easily understand what negligence only through one weekend will do to one's breeding program. Now what can we do? As I said before, the client expects us to do something when we arrive on the place, inject, manipulate or do something so that the animal

would come in heat soon. Neither thyroid nor estrogen therapy is really successful and you would not expect them either in spite of the fact that physiological or rational theorizing could probably result in some evidence of what you should at least try. In our experience those treatments are worthless and if they have any success at all, it is purely coincidental. My prediction of mixed heat is quite successful and I think that anybody looking with a clinical eye would say, "Look at this, the conception rate is 69%—it is almost as high now as reported by the 26 A.I. organizations." I think all success here is due to a much closer observation and, in most instances, double breeding. This is something to remember. Here again, I am trying to show you how to evaluate treatment.

If you collect 100 cows at one time in variable time of heat and then observe them for 21 days, the average number of days to heat from that day would be 11, half of the normal estrus cycle so any method of inducing heat should induce heat in a shorter time, that is, in less than 11 days. I am referring to Williamson and his co-workers' observations in Australia. We conducted a study to test efficiency of observation and also to test and determine the true level of anestrus in a larger population of dairy cattle. Let me just tell you they found cows actually in fertile heat only in 69% of the cases. They were observed in standing heat and that is quite revolutionary, isn't it? We all consider standing heat as the least sign of heat. Cows in heat do not mount other cows in his observation and there may be some different between Australian cows and the cows here. Group activity can be observed only when the cows are free to move around. I should also probably add another observation by those people in Australia where they claim that you have to have cows in the field rather than in the loafing barn. That is also borne out by our own observations. The female in heat is the one that stands. Now, as I said, we should point out to the client or his agent that heat observation practices are not adequate. He should have several observation periods a day—he should also have adequate time for observation. He should also make sure to observe animals in loafing areas, stable and, in most instances, when they are moving. Look for the group activity and also, at least here in Wisconsin and Minnesota, we should look for restlessness in animals. In a herd which is resting, before lunch, before going to bed, after the animals have been milked, or after they have been fed, they are lying down and the animal in heat is not—she's restless? If you have no observation periods, you won't observe anything. If you have

one observation a day, you will probably pick up the short, weak estrus. The more times a day you observe cows, the greater is the chance of observing cows in heat. A study conducted in Louisiana showed that once a day observation led to 61 detected in heat, twice a day 80, three times a day 91, and four times 100%. It is almost too good to be true! In Williamson's work, continuous observation was done by veterinarians throughout the day and also throughout the night in lighted areas (in spotlights) in order to observe cows, suspect cows, rather than others. In the same population, herdsmen observed the cows twice daily. The continuous observation over the three-week period resulted in observing 66, or all cows, in heat. Twice a day observation by herdsmen led to 50% of the cows observed in heat. Another interesting factor is that 44% of the cows in heat were not observed by the people observing cows twice a day. In addition, there were quite a few animals that are presented for insemination which were not in heat. These should convince us that observation is the important factor. I believe we should do everything in our power to improve observation. We should be able to visualize when we are clinically examining the cows by the characteristics of the ovaries and uterus at this time, what stage the particular animal is in and estimate when the next heat period will occur so that the client can put the cow on his heat expectancy chart which should be part of his breeding record complex. We are also talking about the use of teasers. You have probably seen one of the marker units which is displayed by ABS here. There is a particular need for this particular type of help. We are also talking about heat detecting devices and Williamson and his co-workers are very high on them. They have a different kind of climatic situation than we have up here in the Midwest.

If a herdsman is the observing official in the experiment, again you have some failures. Now, to summarize our corrective measures, so far they have been directed toward identifying anestrus and also toward improving observation.

I have some recommendations to follow during the time that is needed to develop this wonder drug and the recommendations are part of a fertility program or a herd health program. First of all, here are measures which we direct to the prevention of preservice anestrus. Any efforts will fail if you have not ably convinced the client of the need for good, individual reproduction records and we should also educate a client to use the records. I think you should stress the need to recognize danger signs. We are talking about number of days



which will be interpreted as signs of danger. All animals should be examined regardless of being in heat. An alert client with good breeding records can reduce the preservice anestrous to a minimum and only a minimal amount of animals will have to be treated by you so it is in the client's hands—if he uses your advice and the reproductive records wisely, he can do the job. Let us look at the second category. Here we have an entirely different situation. Remember that I said a client alone, if he is following your advice, can reduce the incidence of preservice anestrous to a minimum. How about the postservice anestrous? The client is helpless because once an animal is bred, failure to return in heat is taken as an indication and evidence for pregnancy and, in fact, that is what the A.I.

organization reports. Should I point out again how this assumption is erroneous? This is, I think, the form of infertility where you as veterinarians probably can do the most good. It should be the backbone of the herd health programs and here we should detect those animals which shall be serviced and which have not conceived at the earliest possible time. Here we are talking about early pregnancy diagnosis. That is the only procedure which can help your clients to minimize the loss due to this costly type anestrous—early pregnancy diagnosis. I know there are some people here who believe we should not approach the animals before 45 or 60 days because of the risk of damaging the amniotic vesicle. I do not agree with that opinion. Thank you very much.

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## Diagnosis of Abortion in Cattle

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A recent evaluation of diagnostic laboratory data concerning bovine abortion in five north-eastern states was reported by Hubbert, et al., for an 11-year period, 1960-1970 (2). In a series of 3812 bovine aborted fetuses, an infectious cause of abortion was diagnosed in 889 (23.3%) of the cases. The majority of diagnostic laboratories throughout the world do not establish diagnosis on more than 25% of aborted specimens. A higher percentage of diagnoses can be established by concentrated efforts in obtaining more adequate aborted specimens and by conducting more detailed microbiological and pathological examinations. Ideally, the entire fetus should be submitted to a diagnostic laboratory as rapidly as possible so as to minimize decomposition and contamination. The placenta should be submitted because in many of the infectious cases of abortions inflammatory placental lesions will be evident and the organism may be isolated. In some cases, the infectious agent can be isolated from the placenta and not from the fetus. In cases of retention of the placenta, a portion may be removed manually. Paired blood samples taken two to three weeks apart may be of value but are of less value than fresh aborted specimens. The practicing veterinarian should be supplied with forms for recording the history of

the herd and the breeding record of the individual cow in question (Appendix). Since considerable effort and expense is devoted to the laboratory examination of specimens, we believe that the owner and the local veterinarian should cooperate to the extent of presenting adequate specimens and records. We have established that it costs at least \$125 to conduct a detailed examination of an aborted fetus and placenta for various microbiological agents and pathologic lesions. Most laboratories have not been able to devote this amount of funding to all aborted specimens over a prolonged period of time. Therefore, it is necessary to be selective in concentrating diagnostic efforts in herds which have severe abortion problems.

A three-step approach should be used in diagnosing abortion problems. First, identification of the problem herd. When should intense investigation of a problem be initiated? It has been determined in New York State that dairy herds which are bred artificially average about a 2.5% abortion rate. Naturally bred herds have a 5% abortion rate on the average. Therefore, the cause or causes of abortion should be investigated when the incidence goes above 5%. If there is an infertility problem, i.e., repeat breeding, the first aborted fetus should be examined.