Repeat Breeding

IRM-23

Dairy Integrated Reproductive Management

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Repeat breeding can be a major factor involved in infertility. A "repeat breeder" is generally defined as any cow that has not conceived after three or more services associated with true estrus (heat). In herds of normal fertility, where conception rates are commonly at 50-55%, about 9-12% of the cows are expected to be repeat breeders. As the conception rate decreases, the number of cows requiring additional services increases. As a result, repeat breeding rapidly becomes a significant problem, as shown in Table 1.

As with other reproductive problems the key to identifying or confirming a repeat breeding problem lies in a good set of records. By keeping and analyzing good estrus and breeding records one can calculate the percent of repeat breeders in a herd. It is important however, when evaluating the significance of repeat breeding in an infertility problem, to keep the definition of a repeat breeder in mind, so only cows requiring more than three services are considered.

If natural service is used on the farm, frequent pregnancy exams will be especially helpful in identifying repeat breeders. In general, if more than 15% of the cows require more than three services, repeat breeding should be considered a significant problem warranting further investigation.

Table 1: Expected Repeat Breeders[1] at Various Conception Rates[2]

Percent conception	Percent cows conceiving in 3 services	Percent repeat breeders	Percent cows conceiving in 5 services	Percent open after 5 services
70	97%	3%	100%	0%
60	94	6	99	1
50	88	12	94	3
40	78	22	92	8
30	66	34	83	17
20	49	51	67	33

[1]Repeat Breeders-Cows that failed to conceive in three breedings.

[2]Based on: Dairy Reproduction Simulation Model—Jeff Reneau and B.J. Conlin, University of Minnesota, 1984.

Causes of Repeat Breeding

When repeat breeding is a real problem the first step in correcting it is to diagnose its cause or causes. Unfortunately this can be a difficult task since many factors can, and frequently do, contribute to a failure to conceive or maintain pregnancy. Furthermore, the cause may be a herd problem or a variety of individual cow problems. Herd problems are by far the most common, and those most often causing repeat breeding include:

- Inadequate estrous detection, resulting in:
  1. Improper timing of insemination in relation to the onset of standing estrus
  2. Cows being inseminated that have not actually been in estrus
- Semen and insemination techniques:
  1. Inadequate semen quality
  2. Insufficient numbers of sperm
  3. Improper insemination techniques
  4. Infertile bull
- Cow factors:
  1. Metritis and/or endometritis (uterine infections)
  2. Cervicitis and/or vaginitis (cervical/vaginal infections)

Individual cow problems also can cause repeat breeding. Although they are less common and usually not a major factor, they are a part of the problem and cannot be overlooked. Metritis, endometritis, cervicitis and vaginitis can be individual cow problems as well as herd problems. Other common cow problems include:

- Endocrine (hormonal) disorders
  1. Cystic ovaries (may also cause irregular or short cycles)
  2. Delayed ovulation
- Ovulation disorders (these may also be hormonal)
- Obstructed oviducts
- Defective ova
- Anatomical defects of the reproductive tract
- Early embryonic death (may also cause abnormally long cycles)

When a group of repeat breeders that lack anatomical defects are bred, approximately 25% will become pregnant to a single service. In approximately 15% of the cows, ova are either missing or ruptured. Ova are not fertilized in 25 to 35% of the cows and early embryonic mortality occurs in the other 25 to 35% of the cows. Thus most repeat breeders are not sterile, rather they suffer from lowered fertility.

A very comprehensive analysis of the entire reproductive program is necessary to effectively diagnose the complete cause of a repeat breeding problem. To accomplish this most successfully all parties involved in the reproductive management program, namely, the producer, inseminator and veterinarian, need to evaluate the problem and review the herd records together. This approach is the most rewarding since it frequently results in the identification of a number of factors, which alone may be minor, but collectively result in a herd problem.

Inadequate estrous detection is the most frequent cause of repeat breeding. Therefore, when diagnosing the cause of a repeat breeding problem, the estrous detection program should always be thoroughly evaluated (Fact Sheet IRM-6). When estrous detection is faulty, standing estrus is less likely to be observed and more cows are inseminated on the basis of signs other than standing estrus. This results in inaccurate timing of insemination, which in turn results in a failure to conceive.

If a herd problem exists and natural service is used, then a thorough breeding soundness examination of the bull is indicated. This should include a complete diagnostic workup to identify any contributing physical factors or infectious agents.

Sometimes the contributing factors are not readily apparent and only become evident after all members of the management team have had ample opportunity to work together for an extended time. Thus, it is important when attempting to diagnose the causes of repeat breeding that the producer, inseminator and veterinarian continue to work together in an ongoing comprehensive herd health program.

Treatment

The specific treatment program for repeat breeding will depend on the underlying cause or causes. It is beyond the scope of this discussion to outline specific treatments for all causes of repeat breeding. To solve some problems which have specific causes refer to the fact sheets on estrous detection (Fact Sheet IRM-6), estrous detection aids (Fact Sheet IRM-7), semen handling (Fact Sheet IRM-11), artificial insemination (Fact Sheet IRM-12), metritis/endometritis (Fact Sheet IRM-22), cystic ovarian disease (Fact Sheet IRM-25), abortion (Fact Sheet IRM-24), retained placentas (Fact Sheet IRM-21) and reproductive herd health programs (Fact Sheet IRM-18).

Due to the number of different causes and the variation in treatments used successfully for the same cause, specific treatment programs are best developed by the local reproductive management team. Just as in arriving at a diagnosis, the team should develop a complete treatment schedule, thereby insuring that all contributing factors are covered. The effectiveness of specific treatments for the various factors will be difficult to evaluate if all factors causing conception failure are not considered.

Since the identification of all the underlying causes of a repeat breeding problem can be difficult, and since not all cases respond to treatment to the same degree, it is important to evaluate the effectiveness of a treatment program after it has been implemented. A good record-keeping system (Fact Sheet IRM-4) is required to determine if the incidence of repeat breeding has changed as well as an ongoing comprehensive herd health program to determine if specific contributing factors have been corrected.

For example, if metritis was considered a major cause of the problem, has this condition improved; or if estrous detection was diagnosed as inadequate, are more cows now identified in standing estrus and are more cows apparently being inseminated at the proper time based on uterine tone, cervical mucus consistency or milk progesterone tests (Fact Sheet IRM-9)? If these factors have not improved, the team will have to reevaluate the diagnosis and treatment program in an attempt to correct the problem.

Prevention

After correcting a repeat breeding problem it is necessary to continually monitor conditions in the herd to insure that the problem is not recurring. Consequently, the organized reproductive program and records must be kept up-to-date to allow for ongoing evaluation of the herd's reproductive performance. The management team should meet on a regular basis to discuss the status of the program and to review the reproductive records to determine if progress is continuing or if repeat breeding is beginning to increase. Since it is common for this problem to redevelop quite gradually, constant monitoring of the program is necessary. Subtle changes need to be diagnosed and corrected early in their development, before they become major reproductive and economic problems.

In summary, a comprehensive, ongoing reproductive management program, involving a team effort by the producer, inseminator and veterinarian, is the key to success in diagnosing, treating and preventing the problem of repeat breeding.

References

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