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Dairy Health Management for Optimum Production and Reproductive Performance

Maintaining a healthy herd is a constant challenge to today's dairy producer. This NebGuide suggests ways to increase and maintain the quality of your dairy herd.

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- [Records are Essential](#)
- [Heat Detection and Breeding](#)
- [Nutritional Effect on Reproductive Performance](#)
- [Veterinary Services](#)
- [Cows to be Examined by Veterinarian](#)
- [Goals](#)
- [Summary](#)

Maintaining a healthy herd is a constant challenge to today's dairy producer. Each year an average of 20 to 25 percent of dairy cows are culled due to poor reproductive performance or other health problems.

Many factors influence the health and performance of a dairy herd. These include the entire scope of management factors from "on farm" activity to the associated business and financial interactions. All of these are controllable but require knowledge and consistent effort by the producer.

The 20,000-pound or greater herd is increasingly common. Special care is necessary to achieve and maintain these levels. Producers must address dairy animal health (calves, replacement heifers and cows), reproductive performance, genetics, nutrition and udder health (mastitis control) to be successful.

Reducing some program practices to improve short-term income frequently can be counterproductive in the long term. Eliminating veterinary programs and various other practices (record keeping, computer use and management practice information) is a mistake that can lead to long-term losses in herd performance and profitability.

Analyzing carefully maintained records can reveal herd performance trends that may surprise or

disappoint you. Regardless, record/herd analysis is important to profitable dairying. In all instances, records must be used to be of value.

Total quality management (TQM) is the current buzzword in the production of quality food animal products for human consumption. The TQM concept implies that appropriate attention is given to all facets of dairy herd management in an effort to satisfy the consumer and their needs.

There is a distinct relationship between good dairy health and profits in dairying. Currently, dairy herd health programs are also called "Production Medicine" or "TQM." These programs emphasize disease prevention by providing proper nutrition, total management efforts, and a clean, dry comfortable environment, along with properly designed housing facilities, necessary dairy equipment, manure management, etc.

For the TQM concept to be achieved, the *owner(s)* of the enterprise must assume responsibility to truly work to reach goals and then evaluate the results to determine the level of success. Veterinarians, consultants and nutritionists are key factors, but the producer is the vital part of the TQM effort.

The veterinarian services include vaccine use for disease prevention, consultation to reduce metabolic and other disease, mastitis control, pregnancy examinations, and infertility diagnoses, along with proper treatment to eliminate drug residues in food animal products.

This NebGuide is intended to provide information and motivation to seek valuable assistance from specialists in nutrition, physiology, genetics, veterinary medicine and business management.

Records are Essential

Maintaining good records and using computer driven technology is recommended.

To establish an effective program, a thorough understanding of the entire reproductive history in the herd is a necessity. Accurate herd and individual cow histories are essential, and these are available only through reliable and up-to-date records. These records must be easy to maintain, conveniently located and simplified so that interpretations can be made promptly and without confusion. An individual lifetime health record must be developed and maintained for each cow. Important information to be recorded includes birth date, vaccinations, breeding dates, calving dates, condition at calving, past health problems, treatments given, and other relevant data.

Using other records such as Dairy Herd Improvement Association (DHIA) or other milk production record systems is recommended. Daily milk weights are most desirable because they can provide early evidence of potential problems. Reduced milk production may be evidence of sickness or something as simple as heat (estrus). Expected heat dates must be recorded to aid in determining the next probable time of return to heat.

Records must be analyzed periodically to determine problem areas, with emphasis to correct the problem placed where the greatest economic loss is occurring. Currently, DHIA herd summary information can be evaluated and potential dollar losses in the areas of breeding, nutrition, milk quality, and reproduction can be calculated. To have your herd's performance evaluated, simply fill out Table I in NebGuide G93-1139, *Using the DHIA Dairy Herd Analyzer Program*, and return the information to the address provided in the NebGuide. This NebGuide is available at all county Extension offices.

Heat Detection and Breeding

Detection of heat is of the greatest importance in getting cows pregnant at the desired time. For information on this subject see NebGuide G89-952, *Estrus Detection Guidelines*. Cows must be pregnant within 85 days after calving to have a 12-month calving interval. If the voluntary waiting period is 60 days, the efficiency of heat detection must be high to have the cows bred on time. Heat detection influences conception rates. Cows should be inseminated approximately 12 hours following standing heat.

Several mechanical and electronic devices are commercially available to assist heat detection. The devices should be evaluated to determine if they would be helpful and economical in your herd. Also, several hormonal protocols utilizing prostaglandins and/or gonadotrophins can be used to regulate the time of estrus to reduce the time required for heat detection. Your veterinarian can assist in deciding on an appropriate protocol for your herd.

Nutritional Effect on Reproductive Performance

The breeding efficiency of a dairy herd cannot be maintained at a high level without proper nutrition. To attempt reproductive improvement when nutritional balance is incorrect is futile. Cows should be managed for maximum dry matter intake. Cows in early lactation usually lose body weight until dry matter intake increases sufficiently to meet the nutrient demands of lactation. Milk production generally peaks by six to eight weeks postpartum, while intake peaks at 10 to 12 weeks. This lag in feed intake causes the cow to be in negative energy balance, resulting in loss of body weight and condition of greater than three-fourths to 1 condition score. Excessive negative energy balance, as a result of poor feed intake in early lactation, is related to poor milk production, decreased reproductive performance, and overall diminished herd health. Excessively fat or thin cows run much greater risks of metabolic problems, poor conception rates and difficult calving.

Diets must be carefully balanced for protein (escape or "by-pass" and degradable protein), energy, minerals, and vitamins to promote good reproductive performance.

Veterinary Services

Establish a program to provide for your veterinary services needs. These services must be done at the proper time and place in a systematic, coordinated effort. Success depends upon a timed program of examinations to determine potential problems. Your goal must be to prevent them before they occur. An experienced and knowledgeable veterinarian with dairy animal health expertise is required for best results.

A good working relationship between the veterinarian and producer is essential to develop a successful program. Written agreements are desirable whereby both parties know and understand their responsibilities. The veterinarian must design an efficient, well organized disease prevention and treatment procedure that minimizes reproductive failure and other health problems. The producer must provide proper management which includes feeding, hygiene, breeding records, housing and facilities to properly maintain cow comfort and working facilities to minimize stress and risk of injury to personnel or animals.

In addition to the reproductive problems in the cow herd, regular visits by the veterinarian provide for observation of the entire operation from birth of the calf through her development as a replacement heifer, performance in the milking line, and eventual culling. Recommended preventive measures and vaccines are initiated during calthood and administered as the heifer attains the proper age for other immunizations.

Cows to be Examined by the Veterinarian

- Examine all heifers that have failed to show signs of heat (estrus) prior to 14 months of age. This is to determine if the reproductive tract anatomy is normal.
- Cows with retained placentas should be examined by the veterinarian from 24 to 72 hours after calving or if they are sick. Manual removal of the placenta is not recommended. However, individual cases vary and the appropriate treatment should be determined from the veterinary examination. Using prostaglandins is of value in dairy reproductive programs but should be under the supervision of a qualified veterinarian. Prostaglandins used properly are capable of enhancing placenta removal, and improve uterine condition after calving by reducing uterine infections and stimulating ovarian cyclicity. Proper veterinarian supervision of these treatments is necessary.
- All other cows should be examined about 30 days following calving to determine the condition of the entire reproductive tract. Dates of the next heat cycle may be estimated at this time.
- Cows with abnormal discharge or cloudy mucous during heat should be examined for reproductive tract infection. If this discharge is accompanied by a foul odor, straining, and/or weight loss, there usually is uterine infection present. Other discharges may be due to normal heat, urinary infections, vaginitis, or other problems. Blood-tinged, clear mucus 24 to 48 hours following heat is generally considered normal. Abnormal discharge is frequently present following abortion or calving difficulty and these cases should be examined promptly and treated accordingly by a veterinarian.
- Cows that have failed to show heat by 45 to 60 days after calving should be re-examined for possible causes of anestrus (no heat cycle). The primary reason for examination at this time is to determine if detectable abnormalities are present. The examination frequently reveals that the cow has cycled, but heat was not observed. Missing the cow in heat is common, and there may actually be as high as 50 percent of the cows in heat that simply are not detected.
- Cows that abort should be examined immediately. Early diagnosis and treatment may prevent herd problems that can create great economic loss.
- Examine cows with abnormal duration of heat cycles. The average length of the normal estrous cycle is 18 to 24 days. Cycles that are too long or too short frequently signal infertility. Estrous cycles may be irregular, silent, constant (nymphomania), or absent (anestrus). Satisfactory conception rates usually occur in otherwise normal long cycle cows but the short cycle cows usually conceive poorly.
- Repeat breeder cows--cows bred through two or more heat cycles--need examination to help determine the cause of the breeding problem.
- Cows should be examined for pregnancy at 45 to 60 days following breeding. Exams done prior to this time should be repeated at 60 to 90 days to confirm the pregnancy and to determine that resorption or abortion have not occurred. It is not uncommon for fetal death to occur following conception.

At the time of every examination the dairy producer should make short but accurate notes concerning the findings--good or bad. This should be recorded on the individual cow's lifetime health records.

Goals

Goals that are realistic and made possible by adopting a reproductive health program are:

1. Average calving interval between 12 to 13 months.
2. Breeding efficiency below 1.5 services per conception and less than 30 percent returns after 60 days.
3. Postpartum interval to first standing heat between 30 to 40 days.
4. Postpartum interval to first breeding no greater than 55 to 70 days.
5. Repeat breeders of 8 to 10 percent or less.
6. Abnormal anestrus after 60 days postpartum reduced to 2 to 15 percent.
7. Abortions of 1 to 2 percent or less.
8. Retained placentas of 5 to 10 percent or less.
9. Metritis of 5 to 10 percent or less.
10. Culling percentage for reproductive failure below 18 percent.
11. Cystic follicles of 5 to 15 percent or less.

Summary

The maintenance of a healthy and profitable reproductive-status in the dairy herd can be accomplished by proper management (TQM concept). Included in these management factors are good breeding techniques, a balanced feeding program, accurate records, hygiene, and a veterinary service to minimize reproductive inefficiency and disease. A close cooperative approach between the producer, nutritionist, and the veterinarian is necessary for the program to be effective. Considerable profits can be realized from an effective program by increased milk production, better herd health, more calf sales, lower replacement costs and lower breeding expense.

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