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## **Herd health records: Vitaly important, but often out of shape**

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As a teenager I often worked with our veterinarian to maintain health records on the family farm. Our veterinarian had a system to record health information on individual cows. Each cow had a cow page (5.5" x 8.5" cardstock) that was kept in a small notebook. Basic health information, treatments, and examination results including reproductive checks were routinely recorded in the notebook. It was simple and served as a good reference for individual cow information. Note that this was before computer programs like PCDART and Dairy Comp 305. Fast forward forty years. What worked back then is insufficient today. Average herd size has increased, so there is a greater need for herd-level data for management purposes. Today's health records are best when they are complete and recorded electronically so that data can be sorted and summarized easily.

Today's dairy managers typically have much data available for dairy herd management through DHI testing, parlor management software, and/or precision dairy applications. Herd health data is often the weakest link in the management information on many farms.

The Council on Dairy Cattle Breeding (CDBC) includes six disease resistant traits in its Health Trait \$ subindex which is included in Net Merit. They are: displaced abomasum, hypocalcemia (milk fever), ketosis, mastitis, metritis, and retained placenta. These diseases were selected because they are common on dairy farms and have an impact on herd profitability. In order to evaluate the status of herd health of a dairy, one should be able to answer the following questions for each of these diseases:

- How many cows were diagnosed with the disease in the past month? In the past year?
- What percent of the cows in the herd were diagnosed with the disease in the past year?
- What treatments were used? Were the treatments effective?

Written protocols for diagnosing and treating diseases in a herd is an important first step in health data collection. Consistent practices make evaluation much easier. Herd evaluation begins with recording information for individual cows. The following information should be recorded for each disease event:

- What was the diagnosis?
- What treatment protocol was used? (If no treatment was administered, that should also be recorded.)

- What was the outcome? (Did the animal get well? Have a relapse? Die?)
- How many days did the cow spend in the sick pen?
- How many days was milk discarded?

Individual cow data can be helpful in making decisions about whether the cow remains in the herd. If the cow has a chronic condition or spends too much time in the sick pen, it may be more profitable to cull her. Herd health data can be paired with other herd information to analyze where a herd stands related to disease prevalence and treatment success. Does the herd have a problem with a certain disease? Is the situation getting better or worse? How does the herd compare to suggested goals below?

Disease	Goal
Displaced abomasum	≤ 2%
Milk fever	≤ 5%
Clinical ketosis	≤ 3%
Clinical mastitis	≤ 3 cases / 100 cows/month
Metritis	≤ 10%
Retained placenta	≤ 8%

Table 1. Suggested goals for incidence of specific diseases

PCDART from Dairy Records Management Systems (DRMS) offers producers a means to record health-related information in a couple of ways. One can input “Health Conditions” from the Input Desk (P15). Health conditions can be defined by the herd. When inputting the data, one can enter a code for the condition, whether there was a treatment, and remarks. The second way to record the information is by enrolling an animal in a pre-defined protocol. Protocols are constructed by the producer using chores that mimic the chores that would be performed in a written protocol. PCDART’s Tracker series allows producers to summarize health data by month or days in milk, and using a constant or relative date. DRMS has Tracker training videos available on their website ([www.drms.org](http://www.drms.org)). Producers who use Dairy Comp 305 from VAS can enter health data using protocols or as events. One can analyze herd data using the

GUIDE module or the EGRAPH function. In herds not enrolled in PCDART or Dairy Comp, spreadsheets are an alternative means of recording and summarizing health data.

There are several obstacles that are often cited as reasons that health records are incomplete. Time is the biggest obstacle. It takes time to develop protocols and a system of recording, to record the data on a daily basis, and to summarize the data to be able to answer the questions listed above. Another obstacle is that management software may not always be the most intuitive on how to best record the information.

The adage, “If you can’t measure it, you can’t manage it,” certainly applies to health records on dairy farms. Issues with displaced abomasums, milk fever, ketosis, mastitis, metritis, and retained placentas impact milk production and profitability. Without sufficient data, how does one know what areas need the most attention? Accurate and complete health records can complement other herd data used for evaluating and troubleshooting. We’ve come a long way from that simple herd health notebook. Many more tools are available now, but they do require an investment in time to set up, maintain, and analyze. Better information means better decisions leading to increased profitability, making the investment of time worthwhile.

## Analysis of age at first calving and productive performance in Holstein heifers

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The goal of dairy producers is to rear dairy heifers as efficiently as possible, without compromising the future health, fertility,

lactation performance, or longevity. Rearing costs combined with the influence of calving age on future milk production necessitates a defined optimal age at first calving (AFC) for dairy replacement heifers. Heifers should reach first lactation as soon as possible with the best performance possible. This first lactation is considered an important economical trait for the profitability in the dairy industry, and has been shown to be a predictor of lifetime performance and longevity. As decreasing the AFC reduces rearing costs, the aim is to have heifers calving for the first time no later than 24 months. A further decrease in AFC to less than 22 months is generally accepted to have a negative effect on yields of milk, fat, and protein.

Many studies have been done with large databases to determine the most convenient AFC to maximize production and to establish the factors that affect it. Most of these studies show that when AFC occurs too early (i.e., between 20 to 22 months) a decrease in milk yield is observed. A potential explanation for this decrease could be that the heifers are too young at calving, and the requirements for gaining weight and body size are still high. Alternatively, when AFC occurs after 24 months of age an increase in milk production, fat yield and protein yield can be observed. Also, when milk production is corrected by energy, studies have found that heifers perform better AFC increases, which can be associated with the fact that as age increases, the production of the solids in milk also increases. It was also observed that although this first lactation was less productive, when the entire productive life of each cow was measured (lifetime production), the younger heifers were the ones with the greater production. Also, some authors have noticed a relationship between AFC and herd-life. Heifers calving for the first time between 23-24 months had less days in milk per lactation, which can be interpreted as better reproductive performance. Whereas heifers calving at first time before the 27 months of

age had more days in the herd. This would indicate that younger heifers have a lower cull rate per year or per lactation and had a longer productive life compared with heifers calving for the first time after 27 months.

Other than AFC, additional factors may affect production performance during the first lactation, one of them being the calving season. A study from Van Eetvelde, et al. (2020) showed that, the lowest performances occur when heifers calve during the summer and the greatest performance occurs when heifers calve during the fall. The season of birth (the month in which the heifers were born) also affected the productive performance in the first lactation although it has less impact than calving season.

Parity of the dam also affects first lactation milk yield, with heifers from first- and second parity dams producing the greatest amount of milk. As the effect of dam parity is a combination of both genetic and other maternal effects, the higher genetic merit in younger dams might explain, at least partly, why they give birth to more productive daughters.

Lastly, milking frequency (i.e., two or three milkings per day), can affect production performance of heifers during the first lactation. A study from Curran, et al. (2013) reported that younger heifers produced more milk during their first lactation than older heifers when they were milked three times per day. This performance difference was not observed when heifers were milked twice per day.

In summary, AFC is an important factor that affects the first lactation performance. Heifers calving for the first time around 24 months have good productive performance and reduced rearing costs. Heifers calving at a young age (i.e., 20 to 22 months) can have lower milk production during the first lactation, although the life time milk production can be greater for these heifers than for heifers calving at an older age (i.e.,

28 months). There are other factors affecting the performance during the first lactation but they have less impact. In conclusion, it is important to ensure the best conditions possible in the rearing period to breed them early and reach AFC around 24 months of age.

## Upcoming Events

**Virginia Dairy Expo**  
July 8, 2022

**Youth Fitting and Showing Workshop -  
Rockingham County Fairgrounds**  
July 16, 2022

**Virginia Colored Breed Show, Rockingham  
County Fairgrounds**  
August 4, 2022

**State 4-H/FFA Dairy Youth Field Day**  
August 5, 2022

**Virginia Holstein Show, Rockingham County  
Fairgrounds**  
August 6, 2022

**Rockingham County Fair**  
August 15-20, 2022

**Cattle WISE/Equipment WISE-Women in Ag**  
Date TBD (Fall)

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A handwritten signature in black ink, appearing to read 'Christina Petersson-Wolfe'.

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