

IMPORTANCE AND SEASONAL PATTERN OF FERTILITY DISORDERS IN 80 SWISS DAIRY FARMS

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In the course of a herd health management program the reproductive history and disease records of 3581 cows in 80 Swiss dairy farms were collected between September 1993 and October 1996. All cows were systematically examined after parturition and after conception and four major fertility problems were studied: Endometritis, silent heat, non functional ovaries and ovarian cysts. All disorders had a significant influence on fertility in terms of an increased calving to conception interval. Seasonal patterns of disease incidence were present in all four disorders, particularly for non functional ovaries and silent heat. The peaks of disease frequency occurred for all diseases constantly from April-May.

In the course of the herd health management program of the large animal clinic of the University of Berne the reproductive history and disease records of 3581 cows in 80 Swiss dairy farms were collected between September 1993 and October 1996. The farms were visited every two weeks by a veterinarian and all cows within one month after parturition and up to 6 - 8 weeks after conception were systematically examined. Additional examinations were performed on cows with pathological symptoms such as anestrus, abnormal vaginal secretions and failure to conceive. The average size of the 80 farms under study was 21 hectares with an average herd size of 23 cows. The majority of the cattle were Red-Holsteins or Simmental*Red-Holstein crossbreeds. The average calving to conception interval of these cows was 89.3 days, the conception rate after first service was 59%. Twenty-four percent of the cows removed from this population were culled because of fertility problems. A total of 23'107 gynecological examinations were performed: 20% were done because of pathological symptoms, the remaining in the course of the herd health management program. Based on the clinical findings and the individual case history four major fertility disorders were defined: Endometritis, silent heat, non functional ovaries and ovarian cysts.

An endometritis was diagnosed in 19.4% (95% confidence interval, CI: 18.0 - 20.8) of the recorded lactations (n=4905), silent heat in 26.4% (95% CI: 24.9 - 27.9), non functional ovaries in 7.6 % (95% CI: 6.7 - 8.6) and ovarian cysts in 5.5 % (95% CI: 4.7 - 6.3). The influence of these disorders on the calving to conception interval (CCI) were estimated by using a generalized linear model. In addition to the number of treatments within one CCI for the disease under study, effects of farm, cow, calving month, lactation number and other diseases were included in the model. The results were interpreted as relative increase of CCI in percent, taking the group of animals with no treatment as a base. In cows with endometritis the CCI increased by 10% for one, by 14% for two and by 34% for more than two treatments. For silent heat increases of 34% for one and 93% for more than one treatment were obtained and for at least one treatment of non functional ovaries and ovarian cysts increases of CCI by 30% and 27% were calculated. All differences were significant at $\alpha=0.05$ (Bonferroni adjustments were applied to take care of the multiple testing problem).

Two week cumulative incidences of the four disorders were calculated. The population at risk included all nonpregnant cows having at least one calving record. Within one lactation only the first diagnosis of a disease was considered as a case and the animal affected was then removed from the population at risk for the same disease. The time series analysis of the overall time trend (Sept. 93 - Oct. 96) of the cumulative incidences showed an increasing frequency of non functional ovaries and a decreasing frequency of silent heat. The overall time trend of endometritis and ovarian cysts did not indicate signs of non-stationarity. Seasonal patterns of disease incidence were present in all four disorders studied, particularly for non functional ovaries and silent heat. The peaks of disease frequency occurred constantly for all disorders in April and May. These seasonal patterns of disease have to be considered when data derived from herd health management programs is applied as a reference in situations of specific farm problems.

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