STERILITY IN DAIRY COWS AND VETERINARY PROCEDURES IN HERD MANAGEMENT

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Summary

Dairy cow herd sterility is nowadays considered pathological syndrome, and is part of everyday dairy cattle pathology, it is not a disease *sui generis.* Etiology of herd infertility is complex and includes several groups of factors. Factors that cause herd sterility are alimentary, hereditary, hormonal, infectious, environmental and insemination errors. In the etiology of herd infertility scarce and unbalanced diet dominates in 40 to 75 percent. Due to the complex etiology in treatment of herd infertility no general and unique prescription exists. Increased milk production and selection of cows for the production level of over eight thousand litters of milk in lactation, introduction of MIX and MONO meals and mostly stable keeping cows, and the demand disturbs metabolism and always reduces the fertility of dairy cows. Because of reduced fertility, getting a small number of calves, reduced milk production and the inability to achieve optimal fertility than eighty per cent, the question of economic feasibility of growing dairy cattle. Since in clinical practice appears a number of forms and symptoms flock sterility, the author considers the most common forms herd sterility in three dairy cattle farms and veterinary procedures in solving herd sterility of dairy cattle, with the aim of herd fertility is eighty-five percent, because the reproduction key to the success of each of cattle production.

Key words: herd sterility, dairy cow, management, veterinary procedures

Different etiologic factors, genetic and paragenetic lead to decreased fertility. We have in a two-year period, on three dairy farms, investigated the most common forms of infertility. Way of keeping as well as nutrition and milk production was also different. In the tests we have discussed the impact of heat stress on the amount of milk production and fertility of cows. We have taken parity of calving cows, bull semen fertility, and the birth of twins and size of herds of dairy cows into account.

Materials and methods

In a two-year period of fertility monitoring, on farm “A” with 200 dairy cows on farm “B” with 50 dairy cows on farm “C” with 429 dairy cows, we have tracked the most common forms of infertility of dairy cows and their fertility in herd. Cows

on farm "A" and "B" were kept in tied; they were Holstein- Friesian breed, aged between 3 and 6 years, with milk production greater than 8.500 liters of milk in lactation of 305 days. Feeding of these cows was carried out individually (in a tied system) or in a group (in the free stall system) according to the amount of milk production. Cows on the farm "C" were 3 and 4 years old, first and second lactation cows. High pregnancy Simmental heifer was imported from Austria and Germany. They ware kept in a free stall system (in the league boxes) and had a production of 6.800 liters of milk in lactation. Cows were fed MIX and mono meals, once daily, with MIX trailer in a group according to stages of lactation and level of milk production.

Insemination of cows, in most cases was done in natural oestrus, after detecting oestrus in the morning and evening. In cows with reproductive disorders and service period longer than 90 days, insemination after was done after hormone treatment and induction of oestrus by prostaglandin analogues, in the interval of 14 days (GnRH and $PGF_2\alpha$ preparations). Certain number of cows was inseminated after use Ovsinch protocol, in these cows time-specific insemination was done (TAI). Insemination protocol included a natural oestrus, induced oestrus and time-specific insemination. Determination of pregnancy for all cows was done by clinical rectal examination, after 35^{th}, 45^{th} and after 60^{th} days from the last insemination, and in one number of cows by ultrasonography 28 to 60 days after insemination, which was compared with the results of rectal palpation. Cows with metritis and endometritis were treated with the usual methods by use antibiotic treatments (products based on oxytetracycline, locally and parenterally in the recommended doses for treatment of cows). Endometritis after 6 days, after calving treated using the solution of hexidin digluconate in concentration from 2.5 to 5 mg/ml in volume from 100 to 250 milliliters, in three consecutive days. After the fifteenth days post partum, uterine flushing ware performed with povidone iodine in a volume from 60 to 150 ml and in a concentration of 0.5 to 2% that was the case in all cows with pathological puerperium and in cows that had a difficult calving, retention placental membrane or uterus atony.

Results and discussions

The most common forms of herd infertility that we observed were:

A. Cycle interference after insemination

B. Ovarian dysfunction and anoestrus

C. Chronic endometritis

D. Repeat breeders' cows without noticeable clinical symptoms.

These forms of infertility, on the three dairy farm ("A", "B" and "C", with 200 cows, 50 cows and 429 cows in lactation) were besides differences in the way of keeping and feeding, the amount of lactation, were also treated with different veterinary protocols.

Farm A (200 milking cows with the lactation of over 8.800 litres of milk per cow per year). Calving in the last two years (2008 and 2009) was 61%, service period of 270 days and insemination index 4.1 and intercalving interval was 420 days. Procedures and protocols ware not regularly followed, as well as a control of early pregnancy nor was oestrus detected four times daily.

Farm “C”, with 429 milking cows, and production of 6.800 liters of milk per cow, the in first year of testing had 429 calving (heifers), the second year of calving had a 366 with a service period of 172 days and insemination index 2.6 and intercalving interval of 390 days.

On farm “A”, which had the highest production of milk per cow in lactation (8.800), pregnancy was lowest (61%), due to the failure of veterinary procedures and protocols in the reproduction. This can be due to not performing detection of oestrus four times daily, timely artificial insemination, the early diagnosis of pregnancy, monitoring the reproductive health status in puerperium, as well as correct application of the protocol on induction of oestrus cows.

On farm “B”, which had the best fertility of cows (85%), the procedures were applied in the reproduction of dairy cows had the smallest loss of calves, as well as the best artificial insemination of cows.

On farm “C”, with 429 milking cows of Simmental breed in first lactation, where initially protocols were not respected and where ambient conditions were inadequate, 90 calves died. After the introduction of the protocol in farm technology and reproduction, there has been fast improvement in pregnancy rate and reduce mortality of calves. 366 have stayed cows in reproduction and the loss of calves was reduced under 7 percent. Service period for cows in second lactation cows was 172 days, all data’s were monitored by the program Dairy Quest. Herd replacement was small and 24 different animals were excluded due to health and reproductive reasons from production. Thirty-nine animals stayed in the in-calf in 2009 and they are still in insemination they have showed a different reproductive disorder, from cyclical disturbances after insemination and ovarian dysfunction to chronic endometritis, and repeat breeders without noticeable clinical symptoms (pregnancy from 85.31% in herd, exclusion from the production of 5.6%, and with special playback 9.09%). All these cows food MIX-MONO meals and kept in the free system, in a barn with the league boxes

In this study, we have analyzed risk factors in the reproduction of dairy cows and the causes that led to the different fertility of dairy farms in three cows. Herd size and the amount of milk production and breed dairy cows have had decisive act on the fertility of dairy cows. Calving and calving hygiene affect puerperium in conjunction with food, accommodation and cow husbandry and often leads to extended service periods and increased insemination index. Body score condition (BSC) often indicates the state of nutrition, if smooth and small ovaries, are found 45 days after calving that indicates the lack of energy in a meal of cows, and that cows are not properly prepared for lactation i.e. errors in the dry period. On the fertility of cows extremely negative impact in the first trimester (first 90 days

after conception) has a high temperature what is the case in our region during the summer months, June, July and August. Our findings are in agreement with the findings of numerous authors who have studied this issue (7, 8). They have also noticed that the parity of calving, especially after the fourth calving reduces fertility, i.e. extends the service period and increased the insemination index of dairy cows, with these fidings (6) are in allegation. Various protocols for synchronization of oestrus and ovulation that are used in practice allow shortening the period of service and reducing insemination index, and increase fertility of dairy cows (9). Generally the reduction of fertility in all three farms was linked to warm period of time, from May to September, which cites other authors who have questioned it (2, 3, 4). Smaller fertility of dairy cows was also noted in cows with retention of foetal membranes, it was the case in all three herds. Beside that percentage of endometritis, this ranged from ten to thirty percents, with cows in a free system of keeping reduced fertility, in addition to heat stress, season, body condition and nutrition. Uterine Involution reproduction and use of protocols on farm “B” and “C”, examination of cows after calving, until the seventh day, and on days 14, 21, 28, 35 and 42 days post partum increased the fertility. This was due to the fact that treatment of puerperium reduced service time and better detects oestrus in cows. This finding is consistent with the allegations (5.1). Oestrus detection four times daily has enabled insemination of larger number of cows, in optimal time and reaching a higher pregnancy percentage, as was the case at farms “B” and “C”.

Conclusions

In conclusion of this work, we can say that the parity of calving had effect on reducing fertility of dairy cows as it was on the farm, where cows in lactation 7^{th} were kept. In addition to this, cows on this farm were during lactation kept in a tied system. Also weaker BSC, of 2.5, and fatty cows with BSC greater than 4, led to a decrease in fertility on three farms. Percentage of cows’ replacement from production and reproduction, if increased over ten percent, also contributes to the reduction of herd fertility. The work shows that there is a complex action of paragenetic factors, especially nutrition, thermal and nutritive stress, ways of holding and the lower extent of applying of veterinary procedures in the reproduction of dairy cows and herd management can reduce fertility and profit in dairy herds.

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