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# SURVEY ON THE INCIDENCE AND NATURE OF SOME OBSTETRICAL AND GYNAECOLOGICAL PROBLEMS IN COWS, BRED IN LARGE AND SMALL PRIVATE FARMS

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**Summary**

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As a result of the structural reform in livestock breeding in Bulgaria during the last years, the relative part of small private farms has increased. The expectations that obstetrical and gynaecological problems would diminish under these new conditions were not justified and thus, motivated the necessity to clarify this problem from a scientific point of view and to develop measures to address it.

The present survey have studied and analyzed some reproduction problems in cows, bred in small farms using data for 302 cows in 35 farms situated in the western part of the country and the methods of clinical gynaecological examinations, statistics and analysis.

The analysis of the reproductive status of the cows indicated a high percentage of infertility (an average of 41.7%), which was unfavorable to the future reproduction process. The average percentages for recently inseminated cows were 22.5% and for the recently calved – 16.5%, while the percentage of pregnant cows (19.2%) was extremely unsatisfactory. The presented data showed deviations from the accepted standard indices, of a satisfactory fertility and productivity. The indices, characterizing the relative part of dystocia (16%), retention of the placenta (about 18.7%) and endometritis (about 30%), were all unsatisfactory when taking into consideration the standards set for an optimal reproduction process. The aforesaid data were a prerequisite for chronic endometritis and functional disorders.

**Key words**: cows, fertilization, gynaecological disorders, infertility, obstretical disorders, reproduction

## INTRODUCTION

Effective livestock breeding and in particular the effective utilization of the potential of cows for fertility and productivity are among the important current problems. During the last years, a stable tendency for cattle breeding in small private farms, which is part of the phase of development of livestock breeding, is observed. The expectations that obstretrical and gynaecological problems in private farms would decrease were not justified (Dimitrov et. al., 1994; Georgiev et. al., 1999). Obstetrical and gynaecological disorders before and after the parturition, the problems of fertilization and the low effectiveness of the branch as a whole are observed. Therefore, the following objectives, based on these problems, were set: 1. To survey some aspects, such as capacity, base, labor organization, etc., of large and small private farms in a randomly selected regions in the country and to analyze the gynaecological status of the cattle bred there; 2. To establish the status and

the tendencies of both obstetrical and gynaecological problems and their relationship to the realization of the potentials for fertility and productivity in cows.

## MATERIALS AND METHODS

The investigations were carried out in large and small private farms in the regions of Sofia, Kostinbrod and Dragoman. Most of the cows were of the Holstein breed, coming from state farms, which had gone into liquidation, much less were bought from other regions and private farmers.

Observations, gynaecological examinations and analyses were carried out on 302 cows from private farms of different sizes. Depending on the nature of the objectives set, clinical (rectal and vaginal) examinations, statistical investigation and data analyses were made.

The analysis of the obstetrical and gynaecological status of the cows was carried out on those designated for breeding (excluding those, no longer used for those purposes), including the pregnant ones (where the gestation was verified by a rectal examination), recently calved cows (that have not been inseminated till the $80^{th}$ postparturient day), recently inseminated (up to the $80^{th}$ day after they had given birth, but which had not been examined for pregnancy), infertile cows (not inseminated or inseminated after the $80^{th}$ day of the birth of a calf) and cows which had been tested negative to gestation when this investigation was underway (Iliev and Georgiev, 1989).

## RESULTS AND DISCUSSION

The obstetrical and gynaecological status of cows in private farms with different capacity is presented in Table 1. It reveals that small farms with up to 10 cows prevailed in the regions surveyed. Most of them (more than 85%) had 1 or 2 cows.

Bearing in mind the phase of development – liquidation of state livestock breeding farms and the first attempts at establishing private farming, when financial resources are necessary for the animals, fodder, farms, etc., the obtained results could be considered as realistic. This is probably one of the reasons for the least percentage of private farms with more than 50 cows.

In most cases, cows, bred in the smallest farms with up to 10-20 animals, occupied makeshift barns. Larger farms occupied existing old state barns, which have been bought at auction, or premises that have been rented. Not being well preserved, they have retained elements from the technology and labor organization of the former state farms, namely feeding machines, employees with experience in the state farms, artificial insemination and etc. (Stoyanov et. al., 1990; Bildirev and Stoyanov, 1999). In most cases however, farm owners lacked livestock breeding experience. We established that there were no permanently employed veterinarians, specialists and qualified technicians in the investigated farms.

The analysis of the breeds, presented in these farms revealed that in most cases, the cows were of the Holstein breed with good qualities concerning productivity and exterior. This could be explained by the fact that the cows originated from the former state farms, where the selected animals were of excellent breeds.

The data in Table 1 showed that only 58 of 302 observed and examined cows (19.2%) were pregnant. This figure is comparatively small with respect to the technological optimum (about 50%). Iliev & Georgiev (1989) consider 58-60% as the optimum, necessary to provide a normal reproduction.

**Table 1.** Obstetrical and gynaecological status of cows in private farms with different capacity

| Surveyed farms | | Examined cows (n) | Categories of examined cows | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pregnant | | Calved | | Recently inseminated | | Infertile | | | |
| Capacity | Farms (n) | | n | % | n | % | n | % | n | % | From them inseminated | |
| | | | | | | | | | | | n | % |
| Less than 10 cows | 24 | 72 | 10 | 13.8 | 15 | 20.8 | 26 | 36.1 | 21 | 29.1 | 11 | 52.4 |
| 11-20 cows | 7 | 98 | 15 | 15.3 | 22 | 22.4 | 21 | 21.4 | 40 | 40.8 | 14 | 35.0 |
| 30-40 cows | 3 | 73 | 19 | 26.02 | 6 | 8.2 | 13 | 17.8 | 35 | 47.9 | 19 | 54.3 |
| More than 50 cows | 1 | 59 | 14 | 23.7 | 7 | 11.8 | 8 | 13.5 | 30 | 50.8 | 21 | 70.0 |
| Total | 35 | 302 | 58 | 19.2 | 50 | 16.5 | 68 | 22.5 | 126 | 41.7 | 65 | 51.6 |

**Table 2.** Obstetrical and gynaecological status of pregnant cows in private farms with different capacity

| Capacity of farms | Examined cows (n) | Pregnancy rate | | Categories of impregnanated cows | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | As recently inseminated | | As infertile | | F I* | After two inseminations | | After more than 2 insemi-nations | | Artificial in-seminations | | Natural insemi-nations | |
| | | n | % | n | % | n | % | | n | % | n | % | n | % | n | % |
| Less than 10 cows | 72 | 10 | 13.8 | 5 | 50.0 | 5 | 50.0 | 1.7 | 6 | 60.0 | 1 | 10.0 | 3 | 30.0 | 7 | 70.0 |
| 11–20 cows | 98 | 15 | 15.3 | 6 | 40.0 | 9 | 60.0 | 1.7 | 8 | 53.3 | 3 | 20.0 | 8 | 53.3 | 7 | 46.7 |
| 30–40 cows | 73 | 19 | 26.02 | 10 | 52.6 | 9 | 47.4 | 2.1 | 7 | 36.8 | 3 | 15.8 | 11 | 57.9 | 8 | 42.1 |
| More than 50 cows | 59 | 14 | 23.7 | 3 | 21.4 | 11 | 75.6 | 2.14 | 3 | 21.4 | 6 | 42.9 | 12 | 85.7 | 2 | 14.3 |
| Total | 302 | 58 | 19.2 | 24 | 41.4 | 34 | 58.6 | 1.95 | 24 | 41.4 | 13 | 22.4 | 34 | 58.6 | 24 | 41.4 |

*FI = fertilization index

Furthermore, recently calved cows (within the period between 0–80 postparturient days) were 50 (16.5%). This result concerned the spring-summer season and was dependent on the specific work during the previous year. The relative share of the recently inseminated cows (inseminated up to the 80$^{th}$ day after giving birth) was 22.5%. According to specialists working in the field of the reproduction of cows, this percentage is always considered adverse being below 25% (Iliev and Georgiev, 1989).

All of the abovementioned indices (pregnant, recently calved, inseminated) are in their totality very dynamic and illustrate the situation at the specific moment, when the survey is carried out.

Most important was the infertility index. From our experience in state livestock breeding when good records were kept, 15% was regarded as a favorable situation. In some former administrative regions, such as Kyustendil, Blagoevgrad and in particular Plovdiv with a large number of cattle (over 25000), for a period of 10 or so years the percentage of infertility was about 15-16%. In our case 126 (41.7%) out of the 302 examined cows were infertile, i.e. unable to fulfill their biological potential for fertility. The difference (more than three times above the standard) illustrated the importance of the problem of infertility of cows in private farms (Dimitrov et. al., 1994; Georgiev et. al., 1999).

The results from the analyzes of the categories pregnant, recently calved and infertile cows are presented separately in Tables 2–4. The data for the pregnant cows (Table 2) indicated that in larger farms, the relative part of the pregnant cows was greater: 26.02% in farms with a capacity of 30-40 cows and 23.7% in farms with more than 50 cows. The percentage of pregnant cows in the small private farms was low (13.8%). A plausible explanation for the above-mentioned data can be the better care for the animals shown by the owners of larger farms, including a specialized obstretic help. In our opinion, this type of care was extremely valuable in larger farms a few years ago (Kudlač, 1980; Shipilov et. al., 1980; Stoyanov, 1989; Stoyanov et. al., 1990).

The higher percentage of pregnant cows in farms with 30-40 cows could be attributed to the favorable fact that they have been impregnated in most cases as recently inseminated. This evidenced that the necessary care was given to the reproduction status of the recently calved cows in farms with larger capacity. Conversely, in farms with 50 or more cows, more than 50% (58.6%) of the pregnant cows were impregnated when they had been included in the number of the infertile cows (80 days after giving birth). The fertilization index in surveyed farms varied between 1.7 and 2.1, which approximated the desired rate of 1–1.5, guaranteeing a satisfactory efficiency of the insemination. The latter included the costs of the expensive manipulation, sperm and equipment for artificial insemination. The lower index in the smaller farms could be associated with a purely subjective factor – the owner's unwillingness to speed up insemination in order to extend the lactation period and the more frequent relying on natural insemination – in 70 and 46.7% of farms with a capacity of 10-20 cows respectively. In general, the ratio between the natural and artificial insemination at the present phase of development of dairy cattle farming in the surveyed region was 41.4:58.6% (Table 2) with 90-95% in favor of artificial insemination ten or so years ago (Bratanov and Radev, 1977).

**Table 3.** Obstetrical and gynaecological status of calved cows in private farms with different capacity

| Capacity of farms | Exami-ned cows (n) | Recently calved cows | | Pathologies in recently calved cows | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Difficult births | | Retention of the placenta | | | | Acute endometritis | | | | Acute mastitis | | | |
| | | n | % | n | % | n | % | Treated | | n | % | Treated | | n | % | Treated | |
| | | | | | | | | n | % | | | n | % | | | n | % |
| less than 10 cows | 72 | 15 | 20.8 | 2 | 13.3 | 1 | 6.6 | 1 | 100.0 | 5 | 33.3 | 2 | 40.0 | 2 | 13.3 | 2 | 100.0 |
| 11-20 cows | 98 | 22 | 22.4 | 4 | 18.2 | 3 | 13.6 | 3 | 100.0 | 6 | 27.3 | 5 | 83.3 | 4 | 18.2 | 3 | 75.5 |
| 30-40 cows | 73 | 6 | 8.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 33.3 | 1 | 50.0 | 1 | 16.6 | 1 | 100.0 |
| more than 50 cows | 59 | 7 | 11.8 | 2 | 28.6 | 2 | 28.6 | 1 | 50.0 | 2 | 28.6 | 1 | 50.0 | 1 | 14.3 | 1 | 100.0 |
| Total | 302 | 50 | 16.5 | 8 | 16.0 | 6 | 18.7 | 5 | 83.3 | 15 | 30.0 | 9 | 60.0 | 8 | 16.0 | 7 | 87.5 |

**Table 4.** Obstetrical and gynaecological status of infertile cows in private farms with different capacity

| Capacity of farms | Examined cows (n) | Infertiles Cows | | Categories of infertile cows | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Repeated fertilization | | Ovarian disfunctions | | Chronic endometritis | | Others | |
| | | n | % | n | % | n | % | n | % | n | % |
| Less than 10 cows | 72 | 21 | 29.1 | 4 | 19.04 | 8 | 38.1 | 2 | 9.5 | 7 | 33.3 |
| 11-20 cows | 98 | 40 | 40.8 | 10 | 25.0 | 9 | 22.5 | 8 | 20.0 | 13 | 32.5 |
| 30-40 cows | 73 | 35 | 47.9 | 8 | 22.8 | 13 | 37.1 | 3 | 8.6 | 11 | 31.4 |
| More than 50 cows | 59 | 30 | 50.8 | 7 | 23.3 | 13 | 43.3 | 3 | 10.0 | 7 | 23.3 |
| Total | 302 | 126 | 41.7 | 29 | 23.0 | 43 | 34.1 | 16 | 12.7 | 38 | 30.2 |

The presented data in Table 3 illustrate the gynaecological status of the separately examined recently calved cows – 50 or 16.5% of all examined animals for research purposes.

Despite the fact that this percentage was very dynamic and could vary many times every month of the year, its value below 25%, could not be satisfactory. It was evident that there was an inability to provide consistency in the impregnation during the year. This led to undesirable fluctuations of the dairy production which was connected to the ability for market competition (Jainudeen et. al., 1993; Bildirev et. al., 1999). This is particularly important for the larger farms, which rely on selling milk, which is their produce. The relative share of recently calved cows was smaller in those farms and it was respectively 8.2 and 11.8%.

The data in Table 3 show the status and tendencies of two of the most typical gynaecological disorders during the period around birth - the relative part of difficult births (dystocia) and retention of the placenta. The analysis of these indices from a comparative aspect regarding their incidence a few years ago indicated that there was no significant change. In this respect it was evident that small farms had more possibilities for caring for the animals in the period around the parturition (Grunert, 1979; Kudlac, 1980; Samborski, 1980). This was categorically associated with the incidence of acute postparturient endometritis – 30% in total for all examined cows, which had given birth. In smaller and large cattle breeding farms this percentage was higher a few years ago and respectively, the monitoring and gynaecological treatment during the postparturient period were more difficult. In spite of this, the range of pathologies of acute endometritis was better treated, while in the examined cases of the surveyed farms only 60% of the acute endometritis were included in the therapy. With regard to the acute mastitis, the situation was on the contrary – the mastitis in private farms were less (an average of 16%), while the range of therapy was greater (87.5%).

The data in Table 4 reveal the reproduction status of the examined cows in respect to the most typical indices – infertility and its gynaecological signs - relative part of repeated fertilizations, sexual cycle disturbances, chronic endometritis and unspecified cases. The 126 cows established as infertile (41.7%) represented a real loss for the surveyed farms. This situation in all surveyed farms and especially in those with a capacity of more than 10 cows is very disturbing. Half of the cows in larger farms are bred, fed, incur labor etc. costs, but they are unable to realize their potentials for giving birth and their owners cannot produce milk or meat from them.

The analysis of the infertility in cows in respect to the findings of rectal gynaecological examinations indicated a high relative share of sexual cycle disturbances (an average of 34.1%) with highest values of 43.3% (farms with more than 50 cows) and 37.1% (farms with 30-40 cows). The high percentage of the repeated fertilization in the smallest farms (38.1%) was, in our opinion, connected to the difficulties in taking into account the typical mating season condition in cases when few cows were bred at the same place. Most frequently, the precise moment for impregnation of cows in the mating season is missed and the degree of completeness of the sexual cycle and the symptoms of endometritis, persistent *corpus luteum* (PCL) and others are diagnosed too late (Grunert, 1979; Kudlac, 1980). This ref-

ered mainly to the unspecified cases (30.2%) which were considered healthy in our study i.e. it concerned cows ready for breeding, which were not inseminated in time. This is the so-called artificially caused infertility (Shipilov, 1997), which is directly connected to the activities of the owners. We noted that this form of sterility is mostly spread in the smallest farms. In this case a subjectivism regarding the specific moment is evident - while the cow gives milk, it should not be impregnated, as this will cause drying up. This, however, after the natural, physiological stopping of a more extended period of lactation leads to a long period of inability to reproduce, and in some cases wastes the high potential for reproduction of cows (Shipilov, 1997; Georgievet. al., 1999).

## CONCLUSIONS

The investigations and analyses carried out with respect to the reproduction status of cows bred in private farms allowed us to make the following conclusions:

Small farms (with up to 10–20 cows) characterize livestock breeding after the transition from state to private property. The cows in these farms possess good genetic qualities, but they are bred in premises under inadequate conditions, poor labor organization and lack of experience, qualification and motivation of their owners.

The reproduction status of the cows is unsatisfactory with respect to their potential for fertility and productivity and mainly in respect to the lower relative part of pregnant (about 19.2%) and the high percentage of infertile (about 41.7%) animals.

The relative part of the obstetrical and gynaecological pathology (dystocia, retention of the placenta, acute puerperal endometritis – 16%, 18,2% and 30%, respectively), is unsatisfactory when considering the standards for an optimal reproductive process. Nevertheless, it is within the admissible level of normal reproduction when timely diagnosed and treated.

A characteristic feature of the infertility of the examined cows is the prevalence of sexual cyclic disturbances (34.1%) and the unspecified cases (30.2%). This is a result mainly of the lack of consistent gynaecological monitoring and timely intervention when necessary.

The reasons for the unsatisfactory condition of the reproductive status in cows bred in the surveyed small and large private farms are the unawareness to the problem, the unsatisfactory qualification of the owners, the poor or completely lacking contacts between the owners and the veterinary specialists with respect to the diagnosis, therapy or prevention.

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