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Optimizing reproductive performance of herds Simmental breed of cattle imported

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Abstract

Successful development of livestock farms that breed cows with high production capacities such as Simmental and Holstein breeds, an important role of manage genetic breed capacity import into future generations and management factors that constrain improvement of reproductive performance population. Importing a considerable amount of pregnant heifer Simmental and Holstein breeds from Austria, Germany , contributed positively to the addition of milk and meat production in our country. The study was conducted in Bio farm " Ramilli " – Shijak - Durres, for the periods 2008-2011. We also included about 150 cows Simmental pure - breed for dual purpose (milk – meat). Birth of a calf annually for cow provides the optimal milk production that can only be achieved with the correct programs to monitor the events of reproduction. To optimize reproductive indicators for genetic capacity utilization cow is aiming in our study. We also included three groups heifer imported from Austria, and approach them in terms of the farm. Production of milk for the first lactationconducted three groups to 4994 ± 936.4, 4123 ± 817.3, 3750 ± 560 proven statistically differences between them (P< 0:05). Calving interval realized 421.7 ± 73.4, 396.5 ± 42.1, 386.6 ± 43.7 days, the difference proven statistically (P < 0:05). Conception index 2.1, 1.7, and 1.6. Improving reproductive performance in cows with higher milk production capacities, livestock farms achievedthrough unifying control period after calving.

Key words: breed, calving interval, lactation, conception

Introduction

During recent years, different farmers conducted private initiatives by raising livestock farms with cattle of Simmental & Holshtein breed which some of them are already quite consolidated and stand out for the implementation of advanced technologies in cattle breeding. Milk production in cows at first calving results 4800-5300 l / lactation which guarantees a better perspective of bovine populations in the future. Importing pregnant heifers with higher capacities in milk production, requires undertaking studies to identify the production performances and their response farming conditions. Successful development of livestock farms that breed cows with high production capacities Simmental and Holshtein breeds, an important role is the manage genetic breed capacity into future generations and management factors that constrain improvement of reproductive performance bovine population. Importing a considerable amount of pregnant heifer Simmental & Holshtein breed from Austria, Germany, contributed positively to the addition of milk and meat production in our country .

Material and Methods

Our study was conducted in BioFarm Rramilli - Shijak Durres, for the periods 2008-2011. We also included about 150 cows Simmental pure - breed for dual purpose (milk – meat). It includes three groups of pregnant heifer imported from Austria. Unified control method was applied after calving period. Was applied artificial insemination with frozen semen, throught rectocervical method. Reproductive events were monitored (data of AI, performed, conception etc). Pregnancy status methods of assessing the pregnancy status of cattle is manual rectal palpation two months after the last insemination. It is conducted through rectal palpation and provides a safe and accurate diagnosis based on changes to the uterine tract. Milk production was monitored in the first lactation, for the three groups of pregnant heifer, after calving, with milk record method for each month of lactation. The data collected was calculated with statistical methods (F-Test Two-Sample for Variance).

Results and Discussion

Reproduction is a key factor in determining the efficiency of animal production. Reproductive

efficiency can be described as a measure of the ability of the cow to be pregnant and produce calves. A cow will start to produce milk production effectively after calving and will eventually be reduced if this cow did not calve again. From the biological standpoint - the level of calving is suitable for measurement of fertility which determined the number of calves born per 100 inseminations. But fertility usually estimated economic level of calving interval - the period between two successive calving. Control of reproduction offers several notable advantages. Among others, it gives the opportunity to decide on the time of the birth, to reduce the duration of unproductive periods, to optimize litter size and finally to accelerate genetic improvement. It is also an essential tool to finalize application of biotechnologies to livestock.[4]

Calving Interval

The interval between calving is the most important indicator in reproducing dairy herds. Target fertility performance is generally accepted as the production of one calf per cow per year, i.e. a calving interval of 365 days.This requires the average cow to be back in-calf within 85 days of calving, which is difficult to achieve in practice due to increasing milk yields and declining cow fertility. [2]

Table 1: Calving Interval

Indicators / Groups	***1***	***2***	***3***
No. Observation	28	52	20
$\bar{X}$ **± SD**	421.7 ± 73.4	396.5 ± 42.1	386.6 ± 43.7

By elaboration the resulting data: The three groups of cows conducts calving interval away technical target with 56, 31, 21 days on average. This has come as a result of the extension of the period calving to 1st insemination. Calving interval is improved from the first group in the third one. Differences between groups in calving interval reliability can statically prove (2.9>1.7, 0.92>0.55, 2.7>.2.09) for levels of P <0:05.

II. Calving to Conception Interval

If a cow is to calve again within 365 days, she must be cycling normally and become pregnant again within 85 days of calving. However, in recent years an increasing number of dairy cows are having estrous cycle problems in the period after calving. This can have major implications for dairy cow fertility. Testing for pregnancy is an important part of dairy herd management to identify animals that are not yet in-calf. This allows more effort to be concentrated on these animals through a greater emphasis on heat detection or possible use of controlled breeding programs. This has been the standard method of pregnancy diagnosis for many years, and is still a valuable exercise. It is conducted through rectal palpation and provides a safe and accurate diagnosis based on changes to the uterine tract. Rectal palpation can be carried out from around six weeks onwards and should only be conducted by a veterinary practitioner who can determine the age of the developing fetus in early pregnancy.

Table 2: Calving to Conception Interval

Indicators / Groups	***1***	***2***	***3***
No. Observation	119	87	32
$\bar{X}$ **± SD**	113.4 ± 64	112.7 ± 51.3	121.6 ± 68.5

By elaboration the resulting data: Differences between groups in Calving to Conception Interval reliability can statically prove (1.5>1.3, 0.5<0.6, 0.8>0.6) for levels of P <0:05. The three groups of cows conducts calving to conception interval away technical target with 28, 27, 27 days on average.

Conception Index

Conception index calculated according to the formula: number of insemination performed per conception. As seen from the graph have significant improvement in the fertility performance from the first group to the third one. Conception Index for the first group of dairy cattle is 0.5 units away from the target.

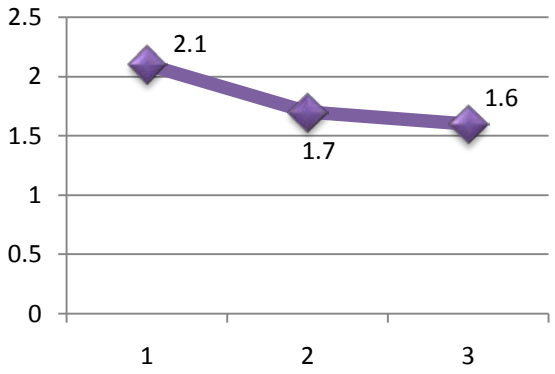

Figure 1 - Conception Index

Interval Calving to 1st Insemination

After calving dairy cows go through a period of sexual inactivity before they resume regular estrous cycles. The length of this period is variable and can be extended by factors such as: Difficulty of calving (dystocia); Retained placenta and uterine infection; High milk yield; Poor nutritional status; Season.[3] This period extension is evidenced by many researchers [2]. As a rule to achieve an average calving interval of 365 days, AI service should normally begin 40 to 50 days after calving. Average interval calving to first insemination for three groups according to the chart results:

From a statistical point observed the difference between the groups but the second group is targeted at technical. Differences between group 1 and 2 in interval calving to first insemination of reliability can statistically prove(0.96 > 0.72) for levels P <0,05. Differences between group 2 and 3 in interval calving to first insemination of reliability cannot statistically prove (1.1 < 1.6) for levels P <0,05. Differences between group 1 and 3 in interval calving to first insemination of reliability cannot statistically prove (1.0<1.6) for levels P <0,05.

Table 3: Interval Calving to 1st Insemination

Indicators / Groups	***1***	***2***	***3***
No. Observation	110	98	33
$\bar{X}$ **± SD**	71.3±30.5	70.3±32.3	64.2±29

Milk Production

Dairy cow fertility has declined considerably over the last 20 years with conception rates falling by 1% per year.[2] This decline is associated with a period of rapidly increasing milk production potential, brought about largely by replacement of the British Friesian with the North American Holstein. There is much debate as to whether the decline in dairy cow fertility is due to introduction of Holstein genetics or under-nutrition of the Holstein-Friesian in a largely grass-based production system. This note will consider various breeding strategies that can be adopted to slow down or halt the current decline in dairy cow fertility.[1]

Table 4: Production of milk / first lactation

Indicators/Groups	***1***	***2***	***3***
No. Observation	36	34	27
$\bar{X}$ **± SD**	4994 ± 936.4	4123±817.3	3750±560

Production of milk in the first lactation reduced while improving the reproductive performance of the first group to the third one. Also, the unified pursuit of control period after calving by specialist vet has given positive effects. In the third group have a significant reduction in the milk production per lactation for reasons: In the third group pregnant heifer imported quality leaves much to be desired (genealogy records) and this is a problem of the farm itself. This group is faced with a low level of feed in terms of meeting their needs. Differences between group 1 and 2 on milk production per lactation of reliability cannot statistically prove (1.4<1.7) for levels P <0, 05. Differences between group 2 and 3 on milk production per lactation of reliability can statistically prove (2.1>1.8) for levels P <0, 05. Differences between group 1 and 3 on milk production per lactation of reliability can statistically prove (2.9>1.8) for levels P <0, 05.

Table 5: Production and fertility of three groups of Simmental cow

Indicators / Groups	***1***	***2***	***3***
Milk yield (liters) 1st Lact.	4994	4123	3750
Days to first service	71.3	70.3	64.2
Days to conception	113.4	112.7	121.6
No.services/conception	2.1	1.7	1.6
Calving interval	421.7	396.5	386.6

The decline of dairy cow fertility over the last few decades in the developed country is in part due to the selection of bulls on production only characteristics

and the generally negative relationship between milk yield and fertility.Some studies showed that the strain with highest yield had poorest fertility and vice versa [1].

High milk production from imported heifer groups besides necessity to improve farming technology has the appearance highlights the problems that worsen the fertility performance. Not all groups have reacted exactly about reproductive performances. Fertility in cattle tends to decrease with the progress in milk production, but its impact on productivity is not negotiable and well-studied. This relationship adds requirements for programs and advanced technology.

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