ANALYZE OF REPRODUCTION ACTIVITY IN DAIRY COWS IN VRANCEA REGION

Paul TĂPĂLOAGĂ[1], Dana TĂPĂLOAGĂ[2], Alexandru ȘONEA[2], Iuliana NEAGU[2], Monica MARIN[1]

[1]University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science Bucharest, 59 Marasti, District 1, 011464, Bucharest, Romania, Phone: +40 21 318 25 64/232, Fax: + 40 21318 28 88, E-mail: rodiantapaloaga@yahoo.ro
[2]University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine Bucharest, 105 Splaiul Independentei, District 3, 050096, Bucharest, Romania, Phone: +40 21 318 25 64/232, Fax: + 40 21318 28 88, E-mail: drtapaloaga@yahoo.ro

Corresponding author email: rodiantapaloaga@yahoo.ro

Abstract

The basis of cattle development, livestock increasing, quality improvement, milk yield and economic efficiency increasing is the reproduction activity process. The researches in the present paper were carried out in Vrancea region, in the south-east of Romania, on a 1000 Holstein Frisian cows livestock, in different lactations, raised in different location. There were analyzed the main reproduction activity indicators resulted following the artificial insemination biotechnology activity: the age at first calving, number of inseminations per one pregnancy, the fecundity index, the length of service-period and calving interval. The primary data were statistically processed, being calculated the main statistic population parameters: average, its error, standard deviation, coefficient of variability. There were recorded the data following every pregnancy, from the first one to the third and there was established the moment of the best results. The obtained results represented key-points in technologic flow optimization of the artificial insemination biotechnology in the studied region, having in view the sustainable agriculture development principles.

Key words: *artificial insemination, reproduction indices*

INTRODUCTION

To achieve the proposed objectives, there were notice the reproduction activity data in the whole country and also in the studied region, from the Romanian Agency for Animal Reproduction recordings and the regional recordings too.

MATERIAL AND METHOD

There were analyzed:
• The evolution of the reproductive livestock in Romania and Ruginesti Vrancea County during 2008 – 2011
• Total artificial inseminations out of total matings in Romania and Ruginesti Vrancea County during 2008 – 2011
• Artificial inseminations percentage out of total matings per year in Ruginesti Vrancea County
• Reproduction indices in cattle in Ruginesti Vrancea County during 2008 - 2011

Following the result interpretation during 2008-2011, we have made a comparison to emphasize the reproduction evolution in during this interval. There were compared:
- cattle livestock
- reproductive cattle livestock
- number of matings
- number of artificial inseminations
- number of descendants obtained by heifers and cows
number of frozen semen doses.

RESULTS AND DISCUSSIONS

In Fig. 1 it is presented the evolution of the cattle livestock during 2007 - 2011. The cattle livestock decreased every year from 2,2 million heads in 2007 to the lowest recorded value in 2011, almost 1,8 million heads. The deepest decreasing was recorded in 2011, almost 10 % beside 2010.
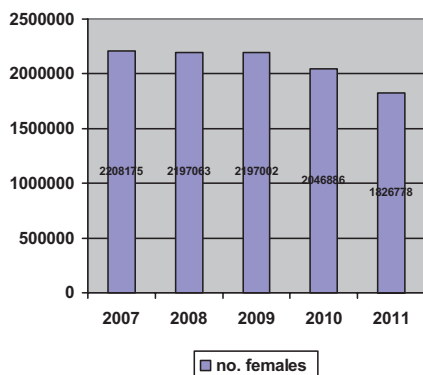
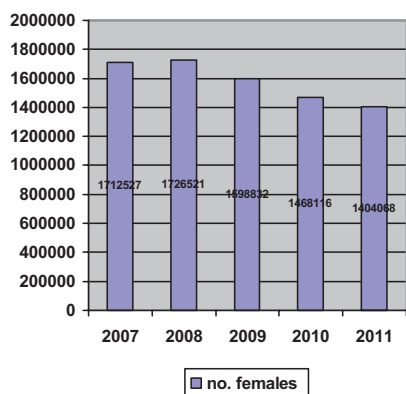Fig. 1. Total Romanian cattle female
during 2007-2011

Fig 3. Cattle artificial insemination
in Romania during 2007-2011

Fig. 2. Reproductive Romanian cattle female
during 2007-2011
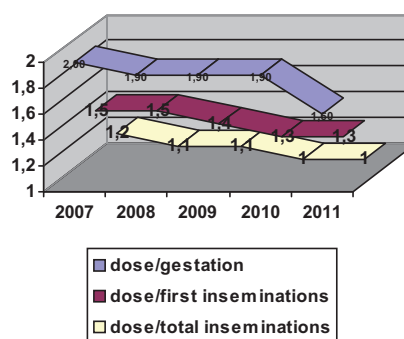
Fig. 4. Number of frozen semen doses
used 2007-2011

The highest value of the Romanian reproductive cattle livestock was recorded in 2008, as 1726521 females and the lowest value in 2011, as 1404068 females. This difference is correlated to the decreasing of the total cattle livestock at the country level.

The insemination percentage at the country level evolved from 49,4% in 2007 to a maximum of 56,9%, in 2008, followed by a decreasing to 2010, of 49,9%, then becoming over 55% in 2011.
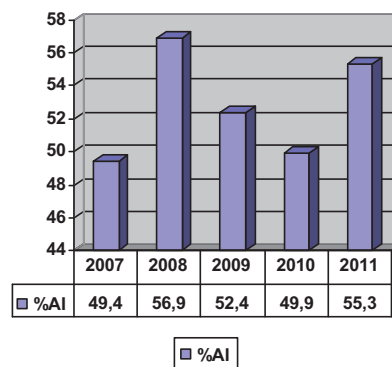
In Fig. 4 it is presented the average consumption at the country level of the semen doses necessary to obtain one pregnancy, for the first insemination and for total inseminations.

Due to the lower price of the semen doses it may notice a decreasing from year to another year of these indicators.

Table 1. Evolution of the reproductive
livestock during 2008-2011

Year	2008	2009	2010	2011
Reproductive livestock	358	301	350	375

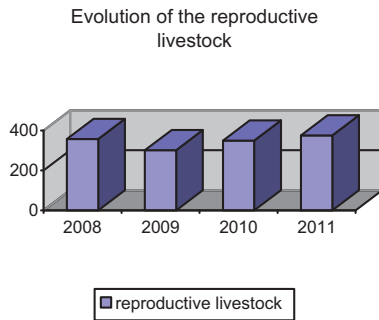Evolution of the reproductive livestock

Fig. 5 - Evolution of the reproductive livestock during 2008-2011

In Table 1 and Fig. 5 it may notice the evolution of the reproductive livestock in the studied region. It may notice an increasing of the livestock with a peak in 2011, contrarily the country level trend.

Table 2. Artificial inseminations and matings in the studied region

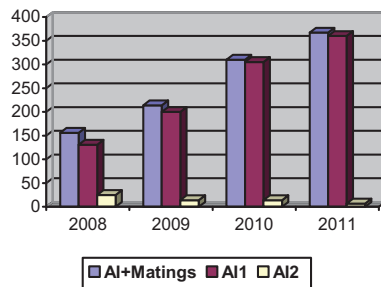| Year	2008	2009	2010	2011
AI+matings	156	214	310	367
AI 1	131	200	305	360
AI 2	25	14	14	7

Chart 6 - Artificial inseminations and matings in the studied region

In Fig. 6 and Table 2 it is quantified the activity of artificial inseminations and matings at Ruginesti Vrancea region. It may notice that how along a few years the number of artificial inseminations increased from 131 in 2008 to 360 in 2011 that representing an increasing of over 250%. The same time, it may notice the decreasing of the number of females which needed the second insemination.

Table 3. Artificial insemination percentage during 2008-2009

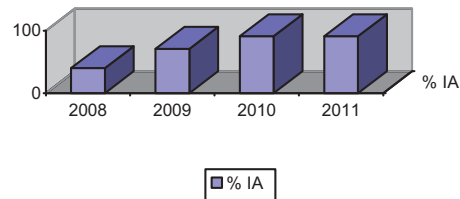| YEAR	2008	2009	2010	2011
ARTIFICIAL INSEMINATION PERCENTAGE	40%	71%	91%	91%

All Percentage

Chart 7 – Artificial insemination percentage during 2008-2009

In Fig. 7 and Table 3 it is presented the evolution of the artificial insemination percentage at the studied region level. This has increased having a maximum of 91% in 2010 and also in 2011. This value shows a special activity achieved by the insemination technicians in this region.

CONCLUSIONS

It may conclude that in the analyzed region, the values of the recorded reproduction indicators are superior in the last year of recording, 2011, followed by the special management regarding the reproduction activity.

Table 4 shortly presents the reproduction indices at the studied region level.

Table 4. Reproduction indices in cattle in the analyzed during 2008 – 2011

Year	2008	2009	2010	2011
Conception rate	83,97%	93,45 %	95,61%	98,08
Pregnancy percentage	100%	98,59 %	99,6 %	100%
Service period	112 days	72,5 days	70 days	59 days
Average number of inseminations per one pregnancy	1,16	1,08	1,04	1,02
Calving interval	397 days	357,5 days	355 days	344 days
Medium age at first calving	23 months	23 months	23 months	23,4 months
Fertility	91,93%	101,02%	102%	107,3%

ACKNOWLEDGEMENTS

REFERENCES

[1] Corrias,A, 1988. *Fecundazione artificiale nei bovini, caprini e suini*. Editura REDA, Roma.
[2] Hafez,E.S.E.-, 2000. *Biologia e tehnologia della riproduzione nelle specie animali di interesse zootehnico.* Editie în limba italiana prezentată de Frederico Chiesa; Editoriale Grasso.
[3] Stoica Angela şi col., 2003. *Metode de intensivizare a reproducţiei la mamifere şi păsări*. Editura Granada, Bucureşti.
[4] Tăpăloagă Paul Rodian, 2011. *Metode de intensivizare şi eficienţă a reproducţiei la suine şi taurine*. Editura Granada, Bucuresti.