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THE RISE OF PROFITABILITY IN SHEEP PRODUCTION BY OUT OF SEASON INDUCTION OF HEAT IN EWES

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Abstract

The paper presents the results for the sexual activity in ewes stimulated by progestagene substance fluorogestonacetate (FGA) in anoestral period. Synchronization was performed in late August and early May of 2009. The treatment was conducted in the ewes in the type of Sjenička improved sheep and total of 100 adult heads was treated. After 12 days, when the sponge was extracted from the ewes they received 1000 i.j. PMSG intramuscularly. The first mating was performed 48 hours after inserting PMSG, and the second one 72 hours after »service by hand«. It was asserted that the estrus was manifested in 98.00% ewes in the number of treated ones. An average fertility in ewes was 183.00%. Number of lambs per treated ewe was 1.83 and 1.93 lambs were obtained per lambing female. Number of sterile ewes was 3.00%. The trial showed that satisfying results have been obtained by using the sponge soaked in fluorogestonacetate (FGA) + PMSG in the conditions of natural mating with synchronization out of season in adult ewes in Sjenička improved type. The 63 lambs more were obtained in relation to regular seasonal mating and wider area of growing of mentioned genotype was asserted as well.

Key words: hormones, progestagens, fluorogestonacetate, ewes fertility.

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Introduction

Besides all planned and random actions performed in sheep improvement in Serbia, a pramenka sheep is still the most important sheep in a sheep breed structure, with Sjenička type as the most distinguished one. Sjenička type is important also for the size of its population and the area of its raising, as well as traditional and recognizable products obtained from sheep of this type (Sjenička sheep cheese, Sjenička lambs), *Mekić et al.*, 2008.

With the aim to improve the production of meat, milk and wool in Sjenička sheep its crossing with Merino sheep in the meat-wool type has been performed in order to obtain greater quantities of meat on one hand and to remove some shortcomings in regard to overgrowth and fineness of wool on the other. This has been conducted for a considerable time now, wherein Sjenička pramenka sheep is being crossed with Wirttemberg breed so that today Sjenička improved sheep is dominant on the terrain, *Mekić et al.*, 2008.

The production of lamb meat in Europe today represents the main task of sheep production because it brings the highest profit. In order to obtain greatest possible number of lambs per breeding female a number of methods for the control of estrus: hormonal and pheromone treatment, manipulation with photoperiod, etc have been used. Hormonal treatments are performed with: progestagens plus PMSG, prostaglandines, GnRH and melatonin. The treatments with progestagens plus PMSG have been most widely used in practice.

The objective of our paper was to scientifically establish the effect of progestagene substance Fluorogestonacetate (FGA) on sexual activity of adult sheep – Sjenička improved in anoestral period.

Material and method

The research into the effect of stimulative preparation fluorogestonacetate (FGA) on sexual activity of ewes in anoestral period was carried out on three individual sheep farms in the vicinity of Valjevo.

The trial included 100 heads of adult ewes in the type of Sjenička improved sheep. Inserting of intravaginal sponges was conducted in the period of April-May in 2009. The polyurethane sponges impregnated with 40 mg fluorogestonacetate (FGA) were inserted into ewes. After 12 days the sponges were taken out and at the same time to each animal was applied intramuscularly 1000 i.j. PMSG, of the commercial title «Sugonal». After the application of PMSG according to a prearranged schedule, the ewes were served two times in the following manner: the first serving was 48 hours after the moment of application of PMSG, and the second 72 hours after the same application. The serving was performed as a controlled «from hand» in individual boxes. During the trial all animals were in a good breeding condition.

Results and discussion

The effect of the action of stimulative progestagene substance Fluorogestonacetate (FGA) in anoestral period on ewes sexual activity is shown in Table 1.

Table 1.- Reproductive performances in ewes of Sjenička improved pramenka sheep treated with FGA in anoestral season

Ord. No.	Parametres	Indices
	Number of ewes treated	100
	In estrus in number of treated ewes	98
	Number of mated ewes	98
	Number of lambed ewes	95
	Number of sterile ewes in the number of ewes in estrus	3
	Total lambs born	183
6.1	Singles	24 (13,12%)
6.2.	Twins	126 (68,85%)
6.3.	Triples	33(18,03%)
	Fertility, %	183,00
	Number of lambs per treated ewe	1,83
	Number of lambs per lambed ewe	1,93

From the results displayed in Table 1 it can be concluded that the estrus was manifested in 98% ewes in relation to the number of treated ones.

As regards an average fertility of ewes which effects directly profitability of the production of lamb meat too, it was on average 183.00%. If we compare our results for ewes fertility in Sjenička improved sheep with the results of *Marjanović* (2001), where it was established that average fertility in mentioned genotype in seasonal mating was 119.24% on average we can see that in our trial the confirmed fertility was higher by 63.76%. This increase refers primarily to a greater number of twins, which was 68.85% in our trial in relation to total number of obtained lambs; there were 3.12% singles and 18.03% triples. Number of lambs per treated breeding female was 1.83 and per lambed ewe 1.93.

Our results are similar to the results of *Bešlin et al.* (1989), who asserted that after the use of Syncro-mate SŽK in the ewes belonging to Sjenička pramenka sheep 93.33% ewes in the number of treated ones were in oestrus, while with the use of Syncro-Mate Sugonal 96.66% ewes were in oestrus.

Skalicki et al. (1989) treated the ewes in Sjenička type by the method «Varamix» SŽK and asserted that estrus was manifested in 97.66% ewes, that there were 90.40% lambed ewes in the number of mated ewes while the number of live born lambs in 100 lambed ewes was 161.06%, what is lower in relation to our present trial.

Mekić et al. (2003) obtained better results by the use of FGA sponges in relation

to Medroxiprogesteronacetate (MAP). Number of lambd ewes in the number of treated ewes was 66% with the use of FGA, while with the use of Medroxiprogesteronacetate (MAP) it was 48.57%.

Ewes fertility is expressed by the number of obtained lambs per 100 lambd ewes and increases significantly by the increase in the number of twining, that is, bearing of greater number of lambs per ewe. In our research an average fertility of 183% was established, whilst the fertility in Sjenička improved ewe in wider area of raising in good growing conditions is about 120%. Therefore, the research showed that satisfying results have been obtained by the use of sponges soaked in Fluorogestonacetate (FGA) + PMSG in the conditions of natural mating at synchronization of estrus in the anoestral period in adult ewes of Sjenička improved population.

Conclusion

On the basis of the research conducted on the effect of induction and synchronization of oestrus in anoestrus period in ewes of Sjenička improved sheep using progestagene substance Fluorogestonacetate (FGA) + PMSG on reproductive parametres following conclusions can be made:

Number of treated ewes	100.
In oestrus in the number of treated ewes	98,00%.
Number of lambd in number of treated ewes	95,00%.
Number of sterile ewes in ewes in oestrus	3,00%.
Mean ewes fertility was	183,00%.
Per treated ewe it was obtained	1,83 lambs,
And per lambd ewe	1,93 lambs.

On the basis of the results obtained a general conclusion can be made that satisfying results were obtained with the use of FGA + PMSG in induction and synchronization of oestrus in out of mating season.

These investigations showed clearly that by the use of new biotechnological methods aimed to control reproductive capacities of ewes the shortening of sterile periods can be influenced upon, as well as the planning of the production of lambs for market when their price is higher, then increasing the number of lambs per one breeding female, what altogether effects the profitability and economy of sheep production.

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