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BIOTECHNOLOGY WAY TO IMPROVE REPRODUCTIVE ABILITY COWS

Trohymenko V.Z., Candidate of Agricultural Sciences
Zhytomyr National Agroecological University

Introduction cows under the skin «Glutam 1M» within 3 days, ranging from 265 th and 270 th day of pregnancy, helps to reduce the duration of pregnancy for 2 and 1.1 days, respectively. Thus cows likely increases by 42.8% ($p<0.05$) and 36.7% fertility of cows after first insemination; reduced to 38.9 ($p<0.001$) and 20.2 days ($p<0.01$) service period; insemination index is reduced by 35% ($p<0.05$) and 37% ($p<0.01$), respectively.

Keywords: *biologically active drug «Glutam 1M» cow dry period, an index of insemination service period, reproductive ability.*

Formulation of the problem. Reproductive capacity of animals in general characterized by low rates of heritability and repeatability. Therefore, the main factors keeping it at the optimum level is environmental factors, proper organization of production, balanced feeding, comfortable maintenance and care, daily active exercise, early detection of hunting, professional help at a hotel, careful record keeping and administration females biologically active substances and preparations in dry period [1].

Established that the cows in the last month of pregnancy observed morphofunctional tension all body systems [2]. The imbalance in regulating neurohumoral systems may result in violations that negatively affect the course of parturition and post-partum period. Therefore, we believe that in addition to full feeding, proper care and maintenance of cows in the dry period, it is necessary to search for drugs that would ensure the neurohumoral system of the body energy and plastic ingredients that would contribute to the normal course stages and accelerated calving to involution of the uterus, resulting in improved reproductive capacity of animals.

Analysis of recent publications. Today, many scientists searching and developing schemes use different bioactive agents cows in the dry period to stimulate their sexual function and to improve future reproductive capacity, correction of metabolic status, hormonal levels in females, getting healthy young animals [3]. Biologically active drugs alter metabolism, immunological reactivity, excitation of the nervous and endocrine systems, normalize metabolic processes in the body and as a result - increase resistance to disease and positively affect the female reproductive system. For this purpose, was used bioactive drug metabolically-neurotropic action "Glutam 1M", which was administered to cows at different days of pregnancy in the last trimester of fruiting.

The aim of the research was the development of biotechnological methods of improving the reproductive ability of cows by entering animals in the last week of gestation biologically active drug "Glutam 1M"

Material and methods research. Research conducted in private farms "Savertsi" Popilnyansky district of Zhytomyr Oblast fastened cows Holstein black and white breed, body weight 550-650 kg. It was formed two groups of 14 cows each. The control and experimental groups were selected on the basis of unique cow age, fatness, body weight and date of artificial insemination. The drug "Glutam 1M" injected subcutaneously experimental animals, ranging from 265 and 270 days of gestation at a dose of 20 ml once a day for three consecutive days. Cows in the control group were injected with 20 ml of saline

Results. Analysis of the literature showed that animals with prolonged embryogenesis include a tendency to lower live weight during the growing older age of first insemination and lower milk production [4]. However, there is also evidence that premature families in cows stimulated with hormones or their analogues, have both positive and negative. Among the negative aspects noted an increase in the frequency of litter delay and poor viability of newborn calves. Positive - improving future reproductive capacity [5]. It was therefore decided to introduce a drug yakmoha closer to the generative process. The theoretical premise of drug use in the last trimester of pregnancy was the need for a minimum number of labor costs and the drug to achieve maximum results in improving future reproductive ability.

Analysis of the duration of pregnancy in cows PAL "Savertsi" showed that 61% of the animals it is an average of 276,3 ± 0,58 days [6]. Given these data, the cows of the experimental group were injected under the skin in the area for a shovel biologically active drug "Glutam 1M" in a dose of 20 ml, ranging from 270 days of gestation, once a day for three days in a row. Control animals was administered 20 ml of saline. Using this scheme of administration in the experimental stage afterbirth of cows was shorter by 1.8 ($p<0.05$) hours and insemination index below 0.7 ($p<0.01$) than in control animals. In the experimental group of cows during the first manifestations of sexual hunt (recovery period) and duration of the service period were significantly shorter at 7.9 and 20.2 days, and the fertility of cows after first insemination increased by 36.7%.

So by putting the cows of Holstein breed drug "Glutam 1M" at 270-272 days of gestation they observed a slight decrease in the duration of pregnancy and improvements in reproductive ability, namely shorten the detection of the first sexual inclination, lower insemination index and reducing the service period.

Injection "Glutam 1M" at 265-267 days of gestation is effective and contributes significant increase by 42.8% fertility in cows after first insemination; reduce the length of the service period to 38.9 days ($p <0.001$) and lower index insemination and 35% ($p <0.05$) compared with control.

Entering "Glutam 1M" Cows on 265-267 and 270-272 days of pregnancy does not cause the detention of membranes after calving, and with decreasing duration PLAYBACK under 2 hours there was a gradual improvement of reproductive ability.

Our results coincide with those obtained by researchers introduction calf cows in early dry period extract of silkworm pupae. These injections resulted in shortening of gestation experimental animals 1.5% (4 days), as observed earlier

onset of sexual hunt by 8.8%; service period decreased by 11.5%, while improved general condition of cows and the growth and development of calves derived from them [7].

Biological effects of the drug "Glutam 1M" in the body of heifers based on the effects of glutamic acid, which is its main ingredient. Glutamic amino acid - essential amino acids, that is, its deficiency in the body it can be synthesized from other amino acids. It participates in the process of transamination of amino acids in the body. Most amino nitrogen passes through the stages included in glutamic, aspartic acid or alpha-alanine. Glutamic acid is involved in protein and carbohydrate metabolism, stimulates oxidative processes, helps neutralize and eliminate ammonia from the body, increases resistance to hypoxia. Promotes the synthesis of acetylcholine and ATP, transfer of potassium ions play an important role in the skeletal muscles. Glutamic acid belongs to neyromediatornyh amino acids that stimulate the transfer of excitation in synapses of the central nervous system. This amino acid can be incorporated in energy and plastic metabolism in various organs or systems of the body, depending on the functional load that they carry. As one of the amino acids oxidized in the brain and serves as an energy source for neuronal activity, her peculiar stimulating effect on the hypothalamic-pituitary system [8].

Glutamic acid is a neurotransmitter in many parts of the spinal cord and brain. This means that there are groups of nerve cells that use glutamic acid as one of the substances that transmit nerve impulses from one nerve cell to another, mainly pulses excitation. However, glutamic acid formed also inhibitory neurotransmitters because excitation pulses are balanced and exciting effect not observed. In the brain glutamic acid is converted to gamma-aminobutyric acid (GABA), which is a major, although not the only inhibitory neurotransmitter. Glutamic acid is involved in the synthesis of adenosine monophosphate (AMP), which is converted further into cyclic adenosine monophosphate (c-AMP). This intracellular mediator of hormonal signal increases the sensitivity of cells to hormones while stimulating the release of sex hormones in the blood and increases their content in muscle tissue. Also a source of glutamic acid in the body hluanidynmonofosfatazy (GMP), which is then converted in the body to hluanidynmonofosfat cyclic (c-GMP). Cyclic GMP, like cyclic AMP is an intracellular mediator of hormonal and neurotransmitter signals. For example, c-GMP - this intracellular mediator effects on muscle and other cells of acetylcholine. Acetylcholine is a neurotransmitter in the nervous excitement of the parasympathetic nervous system [9].

In addition, based on an analysis of the literature and the results of our research can be considered that introduced cows in the last trimester of pregnancy biologically active drug "Glutam 1M", which includes glutamic acid may be a factor that promotes the release of GnRH in hypothalamus animals , faster recovery after calving sexual cycle in cows. We know that at the end of pregnancy there is an intoxication of the mother's own life products and fetal body and accumulate in the blood ammonia, creatinine and urea. Therefore, biologically active drug ingredients "Glutam 1M" obviously contribute to the removal of

metabolic products from the body of a cow, as in the synthesis of glutamine in the body is bound ammonia, which is particularly toxic to the body. Thus, the "Glutam 1M" may have detoxification effect and cleanse the body of a cow products of metabolism, in particular - ammonia.

Thus, the result of research developed biotechnological way to improve the reproductive ability of cows by using biologically active drug "Glutam 1M" in the late dry period, beginning with 265-267 and 270-272 days of gestation. An effective scheme of the drug, thereby reducing the duration of the recovery and service period in cows, reduce index insemination and increase the number of cows that zaplidnylysya the first insemination.

Conclusion. According to the results of theoretical and experimental researches biotechnological methods intensification of breeding cattle by improving reproductive ability of cows for artificial insemination. The essence of the methods is introduced under the skin of cows of Holstein breed in the last trimester of pregnancy at 265-267 and 270-272 days metabolic drug-neurotropic action "Glutam 1M", which intensifies the changes in steroidogenesis and stimulates glycolysis in their body that initiates the process of childbirth, resulting in slightly reduced duration of gestation. These changes in the body cause improvement cows next reproductive ability of animals and do not adversely impact on milk production, calf growth and reproductive capacity of heifers.

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