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### Application of ovariovit to improve dairy cows conception rate

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*This article presents the results of a study on the efficiency of fertilization by treatment with ovariovit and liarsin. The study was conducted on the facility of “Kamyshinskoe” farm in Shemonaikhinskiy region of Vostochno-Khazakhstanskaya oblast in the Republic of Kazakhstan. Animals of different ages and with the same productivity were selected for the experiment. Treatment of animals was carried out after gynecological clinical examination. The examination of animals was performed by rectal and biophysical methods. The efficiency of homeopathic and hormonal treatments of the dairy cows to increase fertility were studied. The performed study enabled evaluation of various schemes for increasing the fertility of dairy cows. The results of the study showed a higher efficiency with the treatment of homeopathic drugs.*

**Key words:** veterinary obstetrics and gynecology, homeopathy, fertility.

#### Introduction

Modern technologies applied in animal breeding are associated with stress factors that impact animals. These impacts differ by their character, intensity and duration. Because of worsening of live-stock handling conditions, feed quality and veterinary care, the number of cows with health issues is increasing, which inevitably leads to live-stock reproduction rate reduction, and as a result, decrease of milk yield. High levels of stress factors including poor conditions leads to functional disorders development in cows, specifically, reproductive function disorders. Infertility in breeding stock is the main factor that limits the breeding of dairy livestock. Damage to farm economics, caused by infertility, is a sum of income losses from acute reduction of milk productivity, under-delivery of calf crop and stranded costs on feeding, handling, care, treatment and numerous infertile inseminations. Thus, in dairy live-stock production calf crop per 100 cows is not more than 60-70 heads. It is established that cows that remain infertile within a year, have their milk yield reduced by 30-50% and sometimes by 70%. In such conditions with varying levels of incorporated technology, these issues in live-stock reproduction persist. These conditions determine acute demand in studies focused on reproductive functions disorders in dairy cows (Ryan et al., 1994). Reproductive organs pathology is one of the reasons of uterine infertility in bovine live-stock, under-delivery of calf crop and decrease of its survival rate. Primarily, re-

productive organs diseases in cows develop during delivery and in postpartum period. But the most important fact is the decrease of insemination rate and milk productivity because of pathologic delivery and postpartum period. It is established that insemination rate decreases by 17–40% and calf crop and milk productivity – by 12–18% (Beam and Butler, 1999).

The above-mentioned facts determine the present demand in developing new methods of treatment and prevention of dairy cows infertility. One of the main aspects in the fight against infertility is to increase the fertility of animals. To increase the fertility rate, it is necessary to reduce the days of infertility and increase the conception rate. In the United States, for example, fertility has been decreasing by 0.45% per year within twenty years (Royal et al., 2000). In the UK, this decline was about 1% per year (Beam and Butler, 1999). In Belgium, there is also a prolongation of the interval between calving and the first successful insemination (Royal et al., 2000).

#### Materials and methods

**Research methods.** Cows aged from 8 to 11 years old with average annual milk yield of more than 8.000 kg were selected for the study. The main purpose of this research was to study the effect of homeopathic ovariovit and liarsin drugs on the fertility of cows in comparison with vitamin-hormonal drugs. The diagnostics was performed by portable ultrasound scanner AcuVista RS880b

with rectal linear probe. By the results of the examination, the dates of cows' pregnancy were revealed.

**Table 1**

Stimulation of fertility in groups

	Control group	1 group	2 group
Drugs	No stimulation	1–3 hours before insemination 2–3 ml of Surfagon, 15 ml of Catosal, 15 ml of Gabivit, 10–15 minutes before 10 ml of Uteroton, 2 ml 2.5% of Progesterone on 8 <sup>th</sup> day after the insemination 15 ml of Catosal, 15 ml of Gabivit	5 ml of Ovariovit for one time 30–60 minutes before insemination. 5 ml of Ovariovit and Lyarsin on the 25–30th day after insemination. Combined with Lyarsin 5 ml
Number of animals	15	15	15

*Experimental Research Facility.* The Experimental research facility of the study was “Kamyshinskoe” farm in Shemonaikhinskiy region of Vostochno-Khazakhstanskaya oblast in the Republic of Kazakhstan.

*Research Stages.* The study of the problem was performed in three stages.

1. The first stage included the review of scientific literature and other studies on the investigated issue and theory and methods of the studies, as well as development of study design, definition of rationale, purpose, methods and plan of tests.

2. The second stage included tests design development, tests performance, analysis and confirmation of the obtained test results.

3. The third stage was dedicated to practical conclusions summary and obtained results arrangement and systematization.

## Results

The results of the present study showed the following results:

**Table 2**

Results of the use of drugs to increase fertility in dairy cows

	Control group	1 group	2 group
Service period	100	85	89
Conception rate	2.4	1.9	2.0

As is shown in the Table 2, the use of hormonal drugs (surfagon, progesterone) in combination with vitamins (gabivit) and an immunostimulant (catosal) with uteroton has the most positive effects on the reproductive system of cows. The animals fully recovered in 85 days after calving and got impregnated with a conception rate of 1.9. The use of drugs ovariovit and lyarsin allowed the animals to get impregnated successfully within 89 days with a conception rate of 2.0. The use of these schemes to increase fertility demonstrated significant improved performance in comparison with the control group.

## Discussions

According to the results of the study, the efficiency of stimulation with hormonal and homeopathic drugs, and

the efficiency of hormonal therapy increased. Moreover, homeopathic treatment plan was slightly less efficient than traditional therapy scheme. From a practical point of view, homeopathic schemes for increasing fertility are more efficient since minimal effort is necessary.

Considering the shortcomings of hormonal drugs due to reduced efficiency in subsequent indications, homeopathic drugs appear to have a major potential due to their natural components. These drugs affect reproductive organs in a natural way, therefore, do not cause addiction and depression in an animal. To improve fertility, various drugs are used. The most common are hormones. One of these hormones is gonadotropin-releasing hormone or its analogs (surfagon). To increase fertility in field conditions, surfagon must be introduced within the first 6 hours after the start of the sexual excitement. The use of surfagon in the first 6 hours of sexual excitement period contributes to an increase in fertility during double insemination by 19.0%. With the use of surfagon at the beginning of the sexual excitement, a cow can be inseminated once, while the efficiency of artificial insemination will be higher by 13.6% compared to spontaneously ovulating, inseminated two times cows (Moreels, 2002). The positive effect of the use of surfagon is noted when the cows are treated with surfagon (before insemination, on the eighth and twelfth day after insemination). As a result, the surfagon increased fertility by up to 91.7% and reduces the chance of fetal mortality. In combination with the biologically active drug “Colicin E-2”, at a dose of 20 ml, the surfagon increased the fertility of cows up to 95% (Arzhaev, 1992).

The beneficial effect of prostaglandin E in maintaining the fertility of the animals has been recorded and proven. The use of prostaglandin E before artificial insemination increases fertility by 16.6% in the summer period and by 23.5% in the autumn period (Arzhaev, 1992). Prostaglandin E also affects the fertility, as it increases blood flow in the uterus and ovaries (Boriskin et al., 2005). Another approach to increasing the fertility of lactating dairy cows was to directly supplement cows with progesterone. According to the results of various studies, the use of external progesterone increases fertility by an average of 5% (Harrison et al., 1990). There was a study where depressive fertilization rates were identified in which controlled internal drug release (SIDR) was applied, containing progesterone. SIDR was introduced to calves on day 1 or day 2 after estrus. In contrast, an injection

tion of progesterone (100 mg) on 1, 2, 3, and 4 days of pregnancy increased fertility (Van Cleef et al., 1989; Mann and Lamming, 1999). Exogenous injection of progesterone on the background of folliculin provides 77.7% of fertility in the first sex hunt. The use of hormonal drugs increases fertility in the first two cycles and reduces the conception rate (Garrett et al., 1988).

In addition to hormonal drugs to improve fertility, you can use complexes for feeding cows. For e, when using "obzidan + BIO-20" for feeding cows, an increase in fertility rate was observed by 16% (Tomitova, 1998). Additionally, to further ensure aseptic insemination, fulfillment of anatomical, physiological and technological requirements that prevent trauma to the mucous membrane of the reproductive tract contributes to an increase in the fertility of females by 25–30% (Kochura, 2004). Insemination of cows in the second sexual cycle after calving increases fertility by 9.9–12% while reducing the conception rate by 0.35–0.76. By delaying treatment to follow a skipped cycle after calving, the service period is shortened by 13.7 days (Nikitina and Kocharjan, 2013).

Also drugs could be applied to increase insemination. Luteostabil in a dose of 1.0 mg for 6–7 days after artificial insemination increases the efficiency of insemination by 10–15% (Erohin and Dunin, 2009). In another study, luteostabil has a positive effect on increasing the effectiveness of 1st insemination by an average of 20%. Luteostabil does not affect the estrogen change level of in the blood, but has a luteotropic effect, which contributes to the normalization of progesterone levels. The use of luteostabil reduces the early embryonic mortality in cows in the period from insemination to implantation of the embryo due to positive changes in the ratios of progesterone and estradiol in the blood of pregnant animals (Artjuh et al., 2001).

### Conclusion

The results of the present study showed that monotherapy for infertility in cows is inefficient, so it is necessary to develop and implement new methods of treatment. The authors studied the necessity of complex treatment plans development that included antibiotic and homeopathic drugs.

Efficiency of combined hormonal and homeopathic therapy was observed along with the efficiency of hormonal drugs. At the same time, homeopathic treatment plan showed lower effect than conventional treatment plan.

Considering the reduced efficiency of hormonal drugs at subsequent indications, homeopathic drugs have higher potential because they are made from natural components. These drugs influence on reproductive organs in a natural way and so animals do not develop tolerance and their functions are not inhibited.

The materials of this article can be useful for veterinary doctors occupied on dairy farms and for other veterinary specialists that monitor and treat infertility in cows.

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