

ASSESSMENT OF PRESERVATION OF QUAIL EGG-LAYING FLOCK DURING EXPLOITING BY THE USE OF NANOSILVER

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Preservation of egg-laying quails during 5 months of productive period by the use of the drug "Argenvit" in various concentrations has been estimated. It has been found that the use of drug nanosilver in the concentration 0,02% and 0,03% gives the best results, increasing the preservation of the flock by 6,7%.

Key words: *egg-laying quails, preservation, nanosilver, the drug "Argenvit".*

Formulation of the problem. Today quail breeding occupies an important place in the poultry farming of Ukraine. The task of modern poultry farming is to increase viability, productivity and fertility of poultry in the conditions of intensive exploitation.

One of the important issues is to increase productivity and natural resistance of poultry by the directional influence of biologically active substances on the metabolic processes in different periods of ontogeny. The use of antibiotics leads to accumulation of them in the products. In this regard great attention is paid to the search for alternative drugs, in particular drugs based on silver in order to improve safety of products [6].

Previous studies have found that the drug "Argenvit" has antimicrobial activity on hard surfaces by the use of 1% solution [4], and increases the preservation of quails [5].

Therefore, use of drugs based on nanosilver in productive terms of poultry farming enterprises is a promising area of research.

Analysis of recent researches and publications. One of the main characteristics of colloidal silver solutions is their long-term stability and unlike antibiotics, which have bactericidal activity in relation to only a limited number of microbes, silver according to its characteristics much more effectively works against most of microorganisms [3].

It has been proved in the works of some scientists that the use of nanosilver influences positively the overall health of poultry, increases the basic productive indexes. So, the researches of S. Shuliak have found that the watering of quails with solutions of colloidal silver influences on strengthening of their body's defenses and increases resistance to stress factors and unfavorable environmental conditions [7].

Studies conducted by V. Borisevich, V. Kaplunenko, M. Kosinov and others [1] have shown that the use of disinfectant "Sumer silver" indoors in the presence of poultry and by its watering reduced the microbial pressure and stimulated assimilation processes in the broilers' organisms, which has contributed to the preservation of poultry by 10%.

Researches of V. Busol, M. Sytnik [2] have proved the effectiveness of the nanocomprising materials that positively affect the health and productivity of quails under conditions of nanocomposite Ag-Cu use.

However, there are no data about the influence of silver drugs on preservation of egg-laying quails, which gives grounds to consider this issue both in scientific and practical terms.

In view of the above, the purpose of our work is to analyze the preservation of egg-laying quails using the nanosilver drug "Argenvit".

Material and research methods. The study was conducted on the base of branch of the Department of Poultry Farming, Quality and Safety of Products – educational, scientific and industrial poultry farm of Novoodesky educational and advisory MNAU IAE department. The object of research – preservation of egg-laying quails of breed "Pharaoh" under the influence of nanosilver, the subject of research – an indicator of preservation of egg-laying quails during exploiting. To determine the effect of the drug "Arhenvit" on the safety of egg-laying quails four groups of birds, 30 birds in each were formed. Quails were kept in cellular batteries of own design on the middle storey. Options of microclimate and feeding rations were the same for all groups of poultry.

To analyze the preservation of egg-laying quails account of motion of poultry population has been performing for five months of productive period. The evaluation of preservation was carried out by the group method.

Watering of quails has been conducting with the drug “Arhenvit” of various concentrations for 30 days under the scheme of experiment (Table 1).

Table 1

The scheme of experiment

Indicator	Group			
	1 research	2 research	3 research	4 control
Number of quails, heads	30	30	30	30
The concentration of the drug, %	0,01	0,02	0 0,03	-

Results. The analysis of these studies has shown that the use of silvercomprising drug during 5 months of exploiting has improved preservation of egg-laying quails (Table 2).

Table 2

Preservation of egg-laying quails during exploiting

Month of exploiting	Period, days	Group			
		1	2	3	K
		Number of quails, heads			
1	2	3	4	5	6
1	42-49	30	30	30	30
	49-56	28	29	28	28
	56-63	27	28	27	27
	63-70	26	27	27	26
Flock on average for a month		27,8	28,5	28,0	27,8
2	70-77	26	27	27	26
	77-84	26	27	27	26
	84-91	26	26	26	26
	91-98	26	26	26	26
Flock on average for a month		26,0	26,5	26,5	26,0
3	98-105	26	26	26	26
	105-112	26	26	26	25
	112-119	26	26	26	25
	119-126	25	26	26	24
Flock on average for a month		25,8	26,0	26,0	25,0

Continuation Table 1

1	2	3	4	5	6
4	126-133	25	26	26	24
	133-140	25	26	26	24
	140-147	25	26	26	24
	147-154	25	26	26	24
Flock on average for a month		25,0	26,0	26,0	24,0
5	154-161	25	26	26	24
	161-168	25	26	26	24
	168-175	25	26	26	24
	175-182	25	26	26	24
Flock on average for a month		25,0	26,0	26,0	24,0
Flock on average for the exploiting period		25,9	26,6	26,5	25,4
Preservation, %		83,3	86,7	86,7	80,0

Analyzing of preservation of egg-laying quails for the accounting period, the following conclusions can be made.

Using of the liquid concentrate of colloidal solution of silver nanoparticles in demineralized water drug “Argenvit” influences positively the preservation of egg-laying quails. Thus, their preservation in the experimental groups during the period of economic use for 5 months amounted from 83,3% (first experimental group) to 86,7% (second and third research groups), which is 3. 3% and 6. 7% more than the control group, respectively.

So, the best preservation was observed in the population of the second and the third experimental groups of quails, which have been watering by the drug “Argenvit” with concentration of 0,02% and 0,03%.

Thus, on the basis of the studies it was found that the use of nanosilver drug “Arhenvit” with the concentration of 0,2% and 0,3% during 30 days of exploiting of the egg-laying quails is one of effective technological methods that allows you to increase the preservation of the flock for the whole 5-month period of egg production, which, in turn, directly affects the main indicators of egg-laying quails productivity – bearing in the middle and the final egg-laying, which significantly increases the profitability of quail eggs.

Conclusions and recommendations for further researches.

Application of the silvercomprising drug “Argenvit” during the exploiting of the market egg flock of the egg-laying quails influences positively preservation, which allows recommendation of the drug at a concentration of 0,02 and 0,03% for use in poultry farms of Ukraine. In further studies efforts should be directed to establishing of the quality characteristics of the quail breeding products while using silvercomprising drugs.

Referenses:

1. Borisevich V. Complex exogenous and endogenous disinfectant “Sumer silver” in growing broilers / V. Borisevich, V. Kaplunenko, M. Kosinov // Proceedings of XII Eng. Conference poultry with international participation “Actual problems of modern poultry farming”. – Kharkiv, 2011. – P. 45-50.
2. Busol V. Influence of nanocomprising complex Ag-Cu on physiological parameters and performance quail [electronic resource] / V. Busol, M. Sytnik – Access: <http://elibrary.nubip.edu.ua/15990/1/12bvo.pdf>.
3. Bernavsky Z. Colloidal silver is a natural substitute of antibiotics / Z. Bernavsky. – Moscow : Korall Club, 2006. – 21 p.
4. Groza V. Testing of disinfectant “Argenvit” in the poultry enterprise / V. Groza // Poultry: science coll. / Kharkiv: IT NAAS, 2013. – Vol. 69. – P. 80-84.
5. Pat. 95309 Ukraine, IPC A 23 K 1/22 (2006. 01). Method of improving the preservation of quail / L. Patryeva, V. Groza; patent owner is Mykolayiv National Agrarian University. – № u201404276; appl. 04/22/2014; publ. 25. 12. 2014, Bull. № 24, 2014.
6. Shatova D. The use of colloidal silver to enhance the safety of poultry [Electronic resource] / D. Shatova, E. Zynyna // V International students’ electronic scientific conference “Students’ Scientific Forum 2014”. – Access mode. – Access: <http://www.scienceforum.ru/2014/660/3744>.
7. Shuliak S. The ability of colloidal silver to cumulation by organs and tissues for the full cycle of growing quail / S. Shuliak, D. Zasyekin // Veterinary Medicine of Ukraine. – 2013. – № 04 (204). – P. 35-37.

*Л. С. Патрєва, В. І. Гроза. **Оцінка збереженості поголів'я перепілок-несучок при експлуатації з використанням наносрібла.***

Проведено оцінку збереженості перепілок-несучок за 5 місяців продуктивного періоду при використанні препарату «Аргенвіт» різної концентрації. Встановлено, що застосування препарату наносрібла в концентрації 0,02 та 0,03% дає найкращі результати, підвищуючи збереженість поголів'я на 6,7%.

Ключові слова: перепілки-несучки, збереженість, наносрібло, препарат «Аргенвіт».

*Л. С. Патрева, В. И. Гроза. **Оценка сохранности поголовья перепелов-несушек при эксплуатации с использованием наносеребра.***

Проведена оценка сохранности перепелов-несушек за 5 месяцев продуктивного периода при использовании препарата «Аргенвит» разной концентрации. Установлено, что применение препарата наносеребра в концентрации 0,02 и 0,03% дает лучшие результаты, повышая сохранность поголовья на 6,7%.

Ключевые слова: перепелки-несушки, сохранность, наносеребро, препарат «Аргенвит».