

С.Сейфуллин атындағы Қазақ агротехникалық университетінің Ғылым жаршысы(пәнаралық)  
= Вестник науки Казахского агротехнического университета им.С.Сейфуллина  
(междисциплинарный). - 2022. – № 4 (115). –Ч.1. - Р. 224-231.

[doi.org/ 10.51452/kazatu.2022.4.1243](https://doi.org/10.51452/kazatu.2022.4.1243)

UDC 68.39.37.

## STUDYING THE INFLUENCE OF THE VERMI FEED ADDITIVE ON DOMESTIC BIRDS (LAYING HENS)

**Yessenbayeva Zhanar Zheniskyzy**

Doctoral student

Kazakh National Research

Technical University named after K. I. Satpayev

Almaty, Kazakhstan

E-mail: esenbaeva.j@mail.ru

**Sainova Gaukhar Askerovna**

Doctor of Technical Sciences, PhD

International Kazakh-Turkish University named  
after Khodja Ahmed Yasavi Turkestan, Kazakhstan

E-mail:ecolog\_conf@mail.ru

**Akbasova Amankul Dzhakanovna**

Doctor of Technical Sciences, Professor

International Kazakh-Turkish University named  
after Khodja Ahmed Yasavi

Turkestan, Kazakhstan

E-mail:ecolog\_kz@mail.ru

### **Abstract**

**Target.** To study the possibility of using vermicorm additives in the diets of laying hens to ensure better absorption of nutrients in the diet of chickens. The results of experimental studies conducted on the use of a new feed additive derived from the biomass of red California worms as poultry feed are presented. The following optimal ratios of components in the developed feed additive in mass have been established. %: biomass of red California worms (6.0), sodium chloride (3.0), seaweed (5.0), calcium peroxide (2.0) the rest is a mixture of meal and cake (mass ratio 1:1) production of cottonseed oil. Scientific novelty. The originality of the solution to the problem lies in optimizing the feeding programs of birds of the egg productivity direction by using a new vermicorm additive. The main task is to replace synthetic antibiotics used for the prevention and treatment of birds and animals. The proposed feed additive (FA) is biologically active, has increased nutritional value due to the content of the complex of interchangeable and essential amino acids of animal and plant origin. In addition, it contains the necessary amount of micro (Se, I, Cu, Mo, Zn, F, etc.) and macronutrients that ensure the normal functioning of birds.

According to the results of the experiment, during the period, the introduction of a fodder additive into the diet of hens of the layers noticed an increase in the intensity of egg production in the first group more by 20%, in the second group of hens of laying hens - 30% and in the third group - 50% compared to the control group.

**Keywords:** vermic feed additive; birds; agriculture; biomass of red Californian worms; productivity; feed diet.

## Introduction

Poultry farming is the most important branch of agriculture, which produces the necessary food of animal origin. Today, this sector of the economy is actively developing in many countries of the world. Among the leading countries in poultry farming are such as China, the USA, Japan and Russia. In world production, the share of poultry meat is almost 30% [1, p.14]. In order for the poultry industry to develop successfully, it is necessary to constantly improve poultry technologies related to production. Also, the full growth and health of the bird, as well as the quality of products in the future, is affected by high-quality and proper feeding. Providing poultry farming with valuable feed additives, provided with a high content of balanced amino acids, including essential, water-soluble vitamins, is one of the promising areas for solving the problem of increasing poultry productivity.

Feed additives are currently becoming important in poultry farming due to their wide range of beneficial effects: stimulating growth and increasing productivity, strengthening immunity and health protection. The global problem of humanity with the rapid growth of the world's population is the shortage of food (25%) and feed (30%) protein. The growing demand of poultry and animal husbandry for

protein feeds can be met as a result of the maximum use of non-traditional renewable sources of animal origin. As you can see, the need of the national economy for protein is huge. Finding new sources of reproducible animal protein, providing them with the urgent needs of poultry and animal husbandry is one of the most acute problems of our time [2; 3].

From non-traditional mineral additives in the feeding of poultry, sapropel, bischofite, highly siliceous mineral complexes such as bentonites, saponites, diatomites, zeolites, kudurites, as well as river sand,

feldspar, shale and many other compounds are used as mineral additives [4, p.205].

Currently, flour from fish and other marine animals, from bones is mainly used as animal feed [5, p.242]. However, these products are of low quality due to the high fat content and high price [6, p.195].

With the development of the vermicultivation industry, scientists have been researching that the worm tissues correspond to high-quality animal protein in composition. The use of the Californian (*Eisenia foetida*) or other worm breeding has become widespread in the United States of America, Canada, Great Britain, Japan, Italy [6, p.197].

Additives of protein flour from vermiculture in the amount of only about 1% to the diet of chickens increase the yield of eggs by 25%, weight gain by 22%, to the diet of dairy cows increases milk yield by 20%, the quality of fur in fur-bearing animals increases, etc. [7].

### **Materials and methods**

All components of the feed additive (CD) have useful properties for increasing the productivity of animals and birds.

The introduction of calcium peroxide into the feed additive of less than 2% does not provide a significant increase in the shelf life of the commercial product and an increase in the live weight of animals, more than 5% does not lead to a further pronounced increase in the effect of its influence.

The biomass of red California worms (*Eisenia foetida*) has a high nutritional value. The worm's body contains up to 67-72% complete protein with a high level of essential amino acids, 7-19% fat, 18-20% carbohydrates, 2-3% minerals, a wide range of trace elements (Fe, Cu, Mn, Zn, etc.) [8].

Sodium chloride is of particular importance for the physiology of the animal organism, because it determines the constancy of osmotic pressure of blood and interstitial fluid, plays an essential role in the regulation of water metabolism [7].

Kuchinskaya is a breed of meat-and-egg chickens that is easily bred at home. The main feature of the Kuchinsky chickens is the combination in their genetics of the best qualities of several breeds at the same time: Rhode

So, according to the literature, protein and vitamin supplements in the diet of poultry affect metabolic processes, enhance the indicators of natural resistance of poultry, thereby contributing to its further productivity.

Island, New Hampshire and Plymouth Rock. Kuchinskaya chickens have a high adaptability to fairly harsh climate conditions. Chickens of these breeds are capable of laying from 5.5–6 months of age [9].

Numerous groups are difficult to form, it is difficult to provide all animals and birds in large groups with the same feeding and maintenance conditions. In large groups, it is difficult to take into account productivity, physiological indicators, which means that the depth of the study decreases. At the same time, the costs of conducting the experiment also increase. Chickens of the same species and the same age were taken into the experiment. According to this, 4 groups were formed to conduct the experiment (3 experimental, control) of 10 heads each (chickens breed "Kuchinskaya", age 22-24 weeks). Experiments on poultry are usually carried out by the group method. The tests were carried out on laying hens in the vivarium of the International Kazakh-Turkish University named after H.A. Yasavi. The experiment lasted for 60 days (January-February). The feed additive was obtained by extrusion. The developed feed additive has no odor, is non-toxic, environmentally friendly, and conditions for the development and growth of pathogenic microorganisms

are not created during its storage. The feed additive is obtained by performing the following operations: extrusion of all components with the addition of worm biomass, pre-crushed cotton waste, their thorough mixing in a mixer, dosing and packaging of the resulting mass. The components are introduced in the state of their initial technological humidity. The color of the feed additive is light brown, the type is a granule.

The absolute (kg) and average daily gain (g/day) of live weight were determined using calculation methods widely known in practice (V.P.Kravtsevich's workshop). Blood for hematological studies was taken from the axillary vein of birds of all groups (I-IV) according to the clinical method in hematology [10, p. 52]. Hematological analyses were made in the laboratory of the Research Institute "Ecology" at IKTU. Hematological blood parameters occupy a special place and are very important both for assessing the physiological status of the birds' organism and for timely diagnosis of pathological conditions [11;16]. This diagnosis makes it possible to assess the functional state of the body, the work of the liver, kidneys, pancreas and other organs, as well as the state of protein, carbohydrate, fat and mineral metabolism, to adjust the feeding diet in a timely manner [12, p.10]. Group accounting of egg productivity of chickens is determined by the method [13;14]. Statistical processing of the results of the study was done using a personal computer and the Microsoft Excel program.

All birds during the experiment received a full diet of feed. The feed additive was fed at a dose of 100-130 g per 1 group 2 times during the day from 04.01.2022 to 05.03.2022. The experimental group received a combined feed (basic diet + feed additive). The control group received only the basic diet, without additives. Laying hens for experiments were kept in disinfected cages in another room separately from other animals of the vivarium. Optimal conditions were created for the birds: the room was lit with fluorescent lamps, the humidity was 70%, the temperature was 15-18 °C. When vermicorm was introduced into the main diet of birds, there was no negative effect on the general clinical condition. A clinical examination was performed daily. All birds have smooth, shiny plumage, the feathers are arranged in regular symmetrical rows along the length of the body. The skin of the comb is smooth, clean, without a flaky layer, characteristic of well-developed adult chickens. The birds were active, willingly ate food, there were no signs of changes in behavioral reactions. When conducting studies to control the physiological state of birds, the hematological composition of blood taken from the axillary vein in experimental and control groups was studied.

Methods of morphological analysis, the egg mass was determined on laboratory scales VLTE-2100 with an accuracy of 0.1 g. Figure 1 shows the process of weighing egg masses on a scale.



Figure 1. Egg of control group (a) and egg of experienced group (b)

## Results

All kinds of effects on the tissues of the body are reflected in the composition and properties of blood. For hematological parameters, blood was taken from all birds (age 22-24 weeks) at the beginning of the experiment and on the 60th day (age 30-32 weeks) of the experiment.

The contents of hemoglobin, erythrocytes, leukocytes and platelets in the blood of birds were determined (Table 1).

Table 1 - Hematological blood parameters of chickens by the end of the experiment (average value)

Indicator	Control group	The concentration of the feed additive introduced into the main diet (№ groups), gr			Normative indicators (by A.A. Kudryavtsev) [14, p.5]
		100 (1)	115 (2)	130 (3)	
Erythrocytes, $10^{12}/l$	$3,0 \pm 0,61$	$3,2 \pm 0,14$	$3,6 \pm 0,35$	$3,5 \pm 0,15$	3,0-4,0
Leucocytes, $10^9/l$	$30,5 \pm 0,57$	$24,7 \pm 0,38$	$26,0 \pm 0,75$	$27,3 \pm 0,91$	20,0-1-40,0
Hemoglobin, g/l	$82,8 \pm 4,1$	$90,7 \pm 5,3$	$95,2 \pm 4,5$	$98,8 \pm 3,7$	80,0-120,0
Thrombocytes $10^9/l$	$43,1 \pm 5,0$	$50,1 \pm 2,0$	$53,1 \pm 5,2$	$51,4 \pm 3,0$	32,0-100,0

Analyzing the data obtained, it should be noted that all hematological parameters of the blood of chickens correspond to the physiological norm. As a result of hematological studies of the blood of birds (laying hens) from the experimental and control groups, an increase in the hemoglobin content in the experimental groups was found by 7.9 g/l (group 1), 12.4 g/l (group 2) and 16.0 g/l (group 3), respectively, compared with the control group. Also,

in the experimental groups, there was a difference in the decrease in the number of leukocytes by  $5.8 \cdot 10^9/l$  (group 1),  $4.5 \cdot 10^9/l$  (group 2),  $3.2 \cdot 10^9/l$  (group 3) compared with the control.

Changes in the live weight of laying hens were monitored once a week by weighing the chickens individually on an electronic scale KW300. The weighing results are presented in Table 2.

Table 2 - The effect of the feed additive on the live weight gain of poultry

The mass of birds (hens) at the beginning of the experiment and at the end of the experiment (from 04/01/2022 to 05/03/2022)				
Indicator	I group (FA-100 g)	II group (FA-115 g)	III group (FA-130 g)	Control group
Average live weight, kg: at the beginning of the experience at the end of the experience	2,5±0,3 3,4±0,2	2,3±0,2 3,1±0,3	2,7±0,4 3,7±0,2	2,6±0,2 2,8±0,1
Absolute gain, kg	0,9±0,05	0,8±0,02	1,0±0,2	0,2±0,01
Average daily increase, g	15±0,2	13±0,3	17±0,2	3±0,1

Based on the analysis of the results of experimental studies, it can be noted that the introduction of vermicorm (FA) into the diet of birds leads to an increase in muscle mass, endurance of the body, immunity to infectious diseases due to the overall improvement of metabolic processes in cells.

One of the important indicators is the egg productivity of poultry in poultry farming. The intensity of the increase in the productive indicators of poultry depends on the amount of assimilation of nutrients.

The effect of the developed feed additive on the productivity of chickens is shown in Table 3.

Table 3 - Egg productivity indicators for the research period (04.01.2022 to 05.03.2022)

Indicators	Control	Experienced (№ groups), the dose of the feed additive /g		
		100 (1)	115 (2)	130 (3)
Egg production per laying hen per month, pieces	12	36	42	54
Intensity of egg production, %	40	60	70	90
Egg weight, g	57,8±0,72	59,3±0,91	61,0±0,98	61,0±1,0

As can be seen from table 3, for 60 days of the accounting period, an increase in the intensity of egg laying (20%) was observed in the first group of laying hens, in the second group of laying hens (30%) and in the third group (50%) compared to the control group. In this table, the last row shows the average value of egg masses. Based on this, it can be assumed that the 130 g - daily dose of the studied supplement

was effective compared to others. The biologically active substances included in the feed additive contribute to increasing the productivity of laying hens.

Conducting statistical processing of the average number of eggs according to Student

$$X = (12+36+42+54)/4 = 36 \text{ pieces}$$

Standard difference

$$s(x) = \sqrt{(12-36)^2 + (36-36)^2 + (42-36)^2 + (54-36)^2 / 4} = 468$$

For analytical analyzes, the probability  $P = 0,95$  is optimal, the repetition of the experiment is -3 Times,  $t = 4.30$ .

Reality interval  $468 \pm \frac{4,30 * 1}{\sqrt{3}} = 468 \pm 2,5$ .

The coefficient of variation of intensity of egg production is  $CV = 0.28\%$ ; the coefficient of variation of mass of egg is  $0.022\%$ .  $CV \leq 10$  ratio is positive.

### Discussion

As can be seen from the results of hematological studies of the blood of birds participating in the experiments, an increase in indicators was revealed – erythrocytes, hemoglobin and platelets, which is explained by the receipt of optimal amounts of nutrients and trace elements by birds. Hemoglobin is involved in the transfer of oxygen from the lungs to the tissues. Leukocytes serve as an important link in the mechanism of immunological protection, interacting with lymphoid cells in certain phases of immunological reactions. It can also be concluded that a decrease in the

number of leukocytes means both the absence of inflammatory processes in birds. Fluctuations in the number of red blood cells and hemoglobin may also depend on feeding: animal feed contributes to the increase of these indicators, respectively, due to the low content of red blood cells and hemoglobin in the control group compared with the experimental. Stress can lead to an increase in the number of white blood cells, and it can also vary depending on the individual characteristics of the bird.

Table 4 below shows the economic efficiency of this feed.

Table 4 - Economic efficiency (for 60 days)

Indicator	Feed additive, Vermicorm	Other feed additive (on the market)
Feed consumption, total kg	41,4	50-70 (depends on the composition)
The cost of feed, total, tenge per kg	700	2252 (the closest feed in composition)
Egg profit, tenge per month	2520	720

Seeing from the table above, we can say that our combined feed is cost-effective compared to other feed additives.

### Conclusions

After analyzing the data obtained, we can draw conclusions:

1. Hematological blood parameters of all experimental and control groups were within the limits of normative indicators.

2. When using a feed additive farm, chickens gain live weight: in the experimental groups, the absolute increase is 28.3%; the average daily increase is 0.5% more than in the control group.

The feed additive obtained on the basis of worm biomass, which has a unique content of interchangeable and essential amino acids, is well absorbed in the body of birds and increases the body's resistance to the adverse effects of the environment.

It is planned to conduct long-term studies to recommend a vermicorm additive in industrial conditions.

## References

- 1 Vasileva, O.A., Nyfer A.I., Shatskih E.V. Alternativnye pýti zameny kormovykh antibiotikov [Alternative ways to replace feed antibiotics] [Tekst] / Effektivnoe zhivotnovodstvo. -2019. -№ 4 (152). -C. 13-15. (In Russ.).
- 2 [Electronic resource] URL: <https://poferme.com/ptitsy/kury/soderzhanie-k/nesushek/korm-k/premiks.html> (date of access 12.03.2022).
- 3 Novikova O., Safonov A. Kormovyye dobavki dlya profilaktiki bakterial'nykh bolezney v ptitsevodstve [Feed additives for the prevention of bacterial diseases in poultry farming] [Tekst] / Effektivnoye zhivotnovodstva, -2019. -№4. -P. 57-60. (In Russ.).
- 4 Okolelova, T.M., Salimov T.M. Biologicheski aktivnye i mineralnye dobavki v pitanii ptitsy [Biologically active and mineral supplements in Poultry nutrition]. Dýshanbe. -2018. -P. 256. (In Russ.).
- 5 Cartwright S.L., [Schmied](#) J., Livernois A., Mallard B.A. Effect of In-vivo heat challenge on physiological parameters and function of peripheral blood mononuclear cells in immune phenotyped dairy cattle [Tekst] / Veterinary Immunology and Immunopathology. -2022. -Vol. 246. -P. 242. URL: <https://doi.org/10.1016/j.vetimm.2022.110405> (In Eng.).
- 6 Kasper, Neliton Flores, Hoch, Gabriela Ceratti, Altermann, Othon Dalla Colletta. Fermentative profile and nutritional value of olive bagasse silage with feed additives [Tekst] / Bioscience journal. – 2020. - Vol. 36. -N 1. - P. 191-202. URL: <http://dx.doi.org/10.14393/BJ-v36n1a2020-41792> (In Eng.).
- 7 R. Dahiya, R.S Berwal, S. Sihag, and C.S. Patil. The effect of dietary supplementation of salts of organic acid on production performance of laying hens [Tekst] / Veterinary World. - 2019. -Vol. 9 (12). - P .1478. (In English).
- 8 Patent №32136 Kazakhstan, Feed additive [Kormovaya dobavka] / Sainova G.A., Akbasova A.D., Aimbetova I.O., Baiseitova B.A.; zaivatel i patentoobladatel MKTÝ imeni H.A. Iasavi, opýbl. 15.06.2017, býl. №11.



- 9 [Electronic resource]. URL: <https://fermerznaet.com/pticevodstvo/kury/kuchinskaya-yubileynaya-poroda.html> (date of access 22.03.2022).
- 10 Amirov D.R., Gracheva O.A., Tamimdarov B.F. Shageeva A.R. [Fuscae et instrumentales investigationes methodi et laboratorium diagnosticum in pathologia non contagiosa avium] Clinical and instrumental research methods and laboratory diagnostics for non-structural pathology of birds [Tekst] / Kazan: Information Technology Centrum Administrationis Civitatis Kazan Aviation, 2015. P. XXVIII. (In Russ.).
- 11 Tatiane Fernandes Karina, Toledoda Silva Rosane, Freitas Schwan. Effect of amylases and storage length on losses, nutritional value, fermentation, and microbiology of silages of corn and sorghum kernels [Tekst] / Animal Feed Science and Technology. -2022. -Vol.285. -URL: <https://doi.org/10.1016/j.anifeedsci.2022.115227> (In Eng.).
- 12 D.K. Dittoe, S.C. Ricke and A.S. Kiess. Organic acids and potential for modifying the avian gastrointestinal tract and reducing pathogens and disease [Tekst] / Frontiers in veterinary science. – 2018. - Vol. 5. - P.1-12. (In Eng.).
- 13 Shatskikh, E.V. [Produktivnost' broylerov pri zamene v ratsione kormovykh antibiotikov na rostostimuliruyushchiye kormovyye dobavki] [Tekst] / Poultry and poultry products. -2019. – № 6. -P. 26-28. (In Russ.).
- 14 Poultry farming: teaching aid for laboratory and practical classes for students in the direction 36.03.02 Zootechnics [Ptitsevodstvo: ýchebno-metodicheskoe posobie k laboratornoprakticheskim zaniatiyam dlia obýchaiýhsia po napravleniý 36.03.02 Zootehnika] [Tekst] : Dalnevost. state agrarian un-t, FVMZ; comp. cand. s.-x. Sciences, Associate Professor V.Ts. Nimaeva. - Blagoveshchensk: Dalnevost Publishing House. state agrarian un-ta, -2019. - 167 p. (In Russ.).
- 15 Gazimzinova M.S., Derho M.A. [Vlianie vozrasta ptits na gazotransportnye svoystva eritrotsitov] [Tekst] / Synthesis of science and education in solving the global problem of modernity: a collection of articles based on the results of international scientific research. - prakt. konf. Sterlitamak, -2017. – Ch. 4. -P. 4 – 7. (In Russ.).
- 16 Selina T., Yadrishchenskaya O., Shpynova S. The use of naked oats in the diets for growing quails. [Tekst] / Poultry farming, -2022. -С. 27-31. DOI: 10.33845/0033-3239-2022-71-5-27-31 (In Eng.).

## **ВЕРМИ ЖЕМШӨП ҚОСПАСЫНЫҢ ҮЙ ҚҰСТАРЫНА ӘСЕРІН ЗЕРТТЕУ (МЫСАЛ РЕТІНДЕ ТАУЫҚТАР)**

**Есенбаева Жанар Жеңісқызы**

Докторант

Қ.И. Сәтпаев атындағы Қазақ Ұлттық Техникалық

Зерттеу Университеті

Алматы қ., Қазақстан

E-mail:esenbaeva.j@mail.ru

Саинова Гаухар Әскерқызы  
Техника ғылымдарының докторы, PhD  
Қожа Ахмет Ясауи атындағы Халықаралық  
қазақ-түрік университеті  
Түркістан, Қазақстан  
E-mail:ecolog\_conf@mail.ru

Ақбасова Аманкүл Жақанқызы  
Техника ғылымдарының докторы, профессор  
Қожа Ахмет Ясауи атындағы Халықаралық  
қазақ-түрік университеті  
Түркістан, Қазақстан  
E-mail:ecolog\_kz@mail.ru

## Түйін

Мақсаты. Тауықтардың азықтануында қоректік заттардың жақсы сінуін қамтамасыз ету үшін азықтану рационында верми-жемшөп қоспасын қолдану мүмкіндігін зерттеу болып табылады. Калифорниялық қызыл құрттардың биомассасы негізінде жасалған жаңа құрамды азықтық қоспаларды үй құстарына қолдану бойынша жүргізілген тәжірибелік зерттеулердің нәтижелері келтірілген. Массаға әзірленген жем-шөп қоспасындағы компоненттердің келесідей оңтайлы құрамдары алынды, %: қызыл калифорния құрттарының биомассасы (6,0), натрий хлориді (3,0), теңіз балдырлары (5,0), кальций пероксиді (2,0) қалғаны-мақта өндірісінің қалдықтары (массалық қатынасы 1:1). Ғылыми жаңалығы. Мәселені шешудің өзіндік ерекшелігі жаңа верми-жемшөп қоспаны қолдану арқылы тауықтардың жұмыртқалау өнімділігін оңтайландыру болып табылады. Негізгі мақсат құстар мен жануарларда болатын ауруларды алдын-алу және емдеу үшін қолданылатын синтетикалық антибиотиктерді алмастыру саналады. Ұсынылып отырған азықтық жем-шөп қоспа биологиялық белсенді қоспа болып табылады, қоспа құрамындағы жануарлар мен өсімдіктерден алынатын алмастырылатын және алмастырылмайтын амин қышқылдарына байланысты жоғары қоректік құндылыққа ие. Сонымен қатар, қоспада құстардың қалыпты тіршілік етуін қамтамасыз ететін микро (Se, I, Cu, Mo, Zn, F және т.б.) және макроэлементтердің қажетті мөлшері бар. Зерттеу нәтижелері бойынша, бақылау тобымен салыстырғанда тәжірибелік топтардағы тауықтарға жем-шөп қоспасын енгізген кезде (I) бірінші топтағы тауықтарда жұмыртқалау қарқындылығы - 20% - ға, (II) екінші топтағы тауықтарда - 30% - ға және (III) үшінші топта - 50% - ға артты.

**Кілт сөздер:** Верми азықтық қоспа; құстар; ауыл шаруашылығы; қызыл калифорниялық құрттар биомассасы; ақуыз; өнімділік; азықтық рацион.

## ИЗУЧЕНИЕ ВЛИЯНИЯ ВЕРМИКОРМОВОЙ ДОБАВКИ НА ДОМАШНИХ ПТИЦ (КУР-НЕСУШЕК)

**Есенбаева Жанар Женисовна**

Докторант

Казахский национальный исследовательский технический  
университет имени К.И. Сатпаева

г. Алматы, Казахстан

E-mail:esenbaeva.j@mail.ru

Саинова Гаухар Аскеровна

Доктор технических наук, PhD

Международный казахско-турецкий университет имени

Ходжи Ахмеда Ясави

Туркестан, Казахстан

E-mail:ecolog\_conf@mail.ru

Акбасова Аманкул Джакановна

Доктор технических наук, профессор

Международный казахско-турецкий университет имени

Ходжи Ахмеда Ясави

Туркестан, Казахстан

E-mail:ecolog\_kz@mail.ru

### **Аннотация**

Цель. Изучение возможности использования в рационах кур-несушек вермикормовой добавки для обеспечения лучшего усвоения питательных веществ рациона кур. Представлены результаты экспериментальных исследований, проведенные по применению новой кормовой добавки, полученной на основе биомассы красных калифорнийских червей в качестве корма для домашних птиц. Установлены следующие оптимальные соотношения компонентов в разработанной кормовой добавке в масс. %: биомасса красных калифорнийских червей (6,0), хлорид натрия (3,0), морские водоросли (5,0), пероксид кальция (2,0) остальное смесь шрота и жмыха (массовое соотношение 1:1) производства хлопкового масла. Научная новизна. Оригинальность решения проблемы заключается в оптимизации программ кормления птиц яичного направления продуктивности путем применения новой вермикормовой добавки. Главной задачей является замена синтетических антибиотиков, применяемых для профилактики и лечения птиц, животных. Предлагаемая кормовая добавка (КД) является биологической активной, обладает повышенной питательной ценностью за счет содержания в составе комплекса заменимых и незаменимых аминокислот животного и растительного происхождения. Кроме того, в ней содержится в необходимом количестве

микро (Se, I, Cu, Mo, Zn, F и др.) и макроэлементов обеспечивающие нормальную жизнедеятельность птиц. По результатам эксперимента в период введение кормовой добавки в рацион кур несушек было замечено увеличение интенсивности яйценоскости в первой группе больше на - 20%, во второй группе кур несушек - 30% и в третьей группе - 50% по сравнению с контрольной группой.

**Ключевые слова:** Верми кормовая добавка; птицы; сельское хозяйство; биомасса красных калифорнийских червей; белки; продуктивность; кормовой рацион.