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Influence of Plant Biological Additive on the Productivity of Young Rabbits

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Abstract. The search for elements of technologies and preparations of natural origin that improve the functioning of the gastrointestinal tract of animals is relevant given that intensive growing technologies involve the use of a significant amount of various kinds of antibiotics that reduce immunity and negatively affect the quality of meat products. Preparations developed on the basis of biologically active substances from essential oils of medicinal and spicy-aromatic plants are promising in this area. The studies used the dietary supplement Activo, recommended for feeding poultry and pigs, created on the basis of essential oils of rosemary, oregano, and thyme. That is why the purpose of the study was to find out the effectiveness and safety of using dietary supplements as an element of intensive rabbit meat production. Research methods – zootechnical, laboratory, statistical. For intensive fattening of young rabbits of the newly created chinchilla type, a mixed feed recipe based on local feed ingredients was developed. It was established that with the addition of Activo to the diet of fattening young rabbits in the amount of 100, 150, and 200 g/t, their productivity at 90 days of age increased, in particular, live weight – by 2.4-5.3%, average daily growth – by 3.5-6.4%, lifetime loin width (meatiness index) by 2.0-2.4%, feed conversion improved by 4.1-5.6%. It is shown that the use of dietary supplements in the amount of 150-200 g/t of mixed feed in the diets of young rabbits with intensive production of rabbit meat reduces direct costs for the production of 1 tonne of rabbit meat by UAH 2,200 and increases the profitability of production by 5%. Thus, the use of a biological additive as an element of intensive fattening of young rabbits helps to improve the lifetime meat content and slaughter yield of young rabbits while reducing the cost of finished feed and increasing its conversion, which leads to a decrease in direct production costs

Keywords: intensive rabbit breeding, comprehensive assessment index, local feed, fattening and slaughter indicators

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INTRODUCTION

In recent years, breeding rabbits as a source of high-quality animal protein has become increasingly popular. Features of development and physiological characteristics of rabbits, namely, their small size, rapid growth rate, high fecundity, short interval between generations, and the ability to consume agricultural by-products as feed makes industrial rabbit breeding one of the promising branches of animal husbandry. In the last 5 years alone, the commercial rabbit population has increased by more than 40%. Rabbit meat is becoming a popular alternative to other dietary types of meat, as it is a source of easily digestible protein, a number of vitamins and minerals (Bashchenko *et al*., 2020; Bharathy *et al*., 2022). However, the cultivation of rabbits using intensive technologies can be accompanied by an increased risk of developing gastrointestinal diseases in animals, especially gastroenterocolitis, viral and infectious infestations, resulting in cases of animal deaths due to a decrease in the body's resistance (Trocino *et al*., 2019).

In this regard, the maintenance of young rabbits, in particular, newly created breed lines, using intensive rabbit production technologies is a resource-intensive process, so there is a constant search for ways to improve and reduce the cost of their cultivation technologies (Cullere & Zotte, 2018). Considering the growing demand for environmentally safe and organic livestock products, there are several ways to solve the problem of optimising the maintenance of rabbits in intensive technologies (Legendre *et al*., 2018). Important in this regard are measures and techniques that improve the feed conversion rate, as this reduces feed costs per unit of production, increases the resistance of animals, reduces the use of antibiotics and other substances that are unacceptable in the production of organic rabbit meat (Crovato *et al*., 2022). Among the effective measures that positively affect feed conversion in animals, the use of pro- and prebiotics in fattening diets is noted (Adhikari & Kim, 2017; Mancini & Paci, 2021). There is also evidence that enriching the diets of young rabbits under conditions of intensive cultivation with vitamin and mineral preparations improves feed conversion (Fedorchenko, 2021). Data on the optimisation of feed conversion and, accordingly, fattening properties of young rabbits with probiotic additives of various compositions have been confirmed experimentally (Honchar & Shevchenko, 2010; Tsyhanchuk, 2021). In another way to optimise the production of environmentally safe rabbit products, it is proposed to improve the rabbit-keeping system, which reduces the use of antibiotics and improves the quality of rabbit meat products (Mondin *et al*., 2021).

Another relevant way to solve this problem is, in particular, energy optimisation of diets for intensive cultivation of rabbits of highly productive hybrids (Alejandro *et al*., 2021). The balance of nutrients in the diets of young rabbits, in particular, protein (Sychov *et al*., 2018). All the described measures and techniques for improving and reducing the cost of technologies for raising young rabbits are effective, since they allow using the genetic potential of animals to the full, maximally ensuring their needs at each stage of ontogenesis (Yakubets & Bochkov, 2018; Birolo *et al*., 2022).

Thus, the investigation of the application features, the study of the productive effect and safety of various natural feed additives in rabbit fattening remains relevant and innovative. That is why *the purpose of the study* was to substantiate and develop a scheme for the use of Activo, determine the optimal doses of this additive in the diets of young rabbits, its impact on productivity, lifetime meat content and slaughter yield of animals, establish the degree of feed conversion and safety of using the additive, profitability and economic efficiency in feeding young chinchilla rabbits with intensive cultivation.

MATERIALS AND METHODS

Studies of the effect of dietary supplements on the metabolism of young rabbits were conducted in the Kolomyia branch of the Precarpathian State Agricultural Experimental Station of the Institute of Agriculture of Carpathian Region of the NAAS of Ukraine on the premises of an experimental farm that uses intensive technologies for the production of rabbit meat. The genotype of rabbits bred on the farm is three-breed crossbreeds of Chinchilla, Flandr, and Termon white (a newly created type of Chinchilla, NCCT). Young chinchilla rabbits were selected for research.

To establish the optimal dose, safety, and effectiveness of Activo, 6 groups of young rabbits of 10 animal units each (5 males and 5 females) were established by the method of analogue pairs according to the scheme presented in Table 1. The discrepancy in the age of rabbits selected in the experimental and control groups was no more than 1-2 days, the average age was 30 days, the differences in live weight of one animal did not exceed 7 g with an average weight of 521 g. The preparatory period for setting up the experiment lasted five days, the main one – 60 days.

Table 1. *Experiment scheme*

Group	Nature of feeding young rabbits (NCCT), n = 10
I (control)	Basic diet (BD), without dietary supplements
II (experimental)	BD + 50 g Activo per 1 tonne of finished feed
III (experimental)	BD + 100 g Activo per 1 tonne of finished feed

Table 1, Continued

Group	Nature of feeding young rabbits (NCCT), n = 10
IV (experimental)	BD + 150 g Activo per 1 tonne of finished feed
V (experimental)	BD + 200 g Activo per 1 tonne of finished feed
VI (experimental)	BD + 250 g Activo per 1 tonne of finished feed

Source: *compiled by the authors*

The study was carried out by comparative analysis of growth intensity indicators of young rabbits before they reached the age of 90 days. The basic characteristics of growth intensity were determined by the absolute, relative, and average daily weight gain, feed conversion, lifetime meat index – the width of the lumbar region and slaughter indicators.

To determine the objective value of fattening and meat qualities of experimental animals, the comprehensive assessment indicator (CAI) was calculated (Luchyn, 2005) by applying indicators of average daily weight gain and lumbar width using the equation:

$$CAI=5.1(K+2H) \quad (1)$$

where CAI – comprehensive assessment indicator; 5.1 and 2 – correction factors; K – average daily increase in live weight of young animals for the growing period, g; H – width of the lower back, cm.

To meet European requirements regarding the composition and nutritional value of feed for intensively growing young rabbits, a mixed feed recipe was developed using local feed ingredients of the following composition: barley turf (10%), oat turf (10%), wheat bran (10%), sunflower meal (20%), alfalfa flour (35%), table salt (0.4%), premix (3.1%). 1 kg of such mixed feed contains 0.88 kg of dry matter, 175.0 g of crude protein, and 160.0 g of crude fibre, which provides animals with 9.19 MJ of metabolic energy.

The dietary supplement used in the study is a mixture of essential oils from extracts of medicinal and aromatic plants, microencapsulated and stabilised on a matrix of hydrogenate vegetable fats. Due to the standardised content of biologically active substances from oils of *Thymus vulgaris*, *Rosmarinus officinalis*, *Origanum vulgaris*, and bitter pepper extract, the drug affects the taste buds, which improves the taste of feed and reduces its conversion, improves the efficiency of the intestines of animals, since it has the ability to suppress pathogenic microflora, in particular, *Escherichia coli*, *Lawsonia, Salmonella*, *Clostridium perfringens*, *Enterococcus*, *Staphylococcus*, increases the intensity of growth, promotes the preservation of young animals. In the studies, a dietary supplement was used, which, in the doses indicated in the experiment scheme, was introduced into mixed feed and, after thorough mixing, fed to experimental groups of rabbits daily.

All experimental studies were conducted in accordance with modern methodological approaches and in compliance with the relevant requirements and standards, in particular, they meet the requirements of DSTU ISO/IEC 17025:2005 (2006). The animals were kept and all manipulations were carried out in accordance with the provisions of the procedure for conducting experiments on animals by scientific institutions (Law of Ukraine No. 249, 2012), the European convention for the protection of vertebrate animals used for experimental and other scientific purposes (European convention..., 1986).

RESULTS AND DISCUSSION

Rabbits are one of the most promising producers of dietary meat among farm animals, as they have a short life cycle, high fecundity, short gestation period, and a fairly high ability to convert feed (3.0-3.5 kg of complete granulated feed per 1 kg of growth) (Bojko *et al.*, 2020). Despite all these important features, the consumption of rabbit meat in the world and in Ukraine is decreasing due to the complex digestive physiology of these herbivorous rodents.

Intensive rabbit breeding involves the use of complete mixed feeds, which should provide the animals with all the nutrients to ensure proper and rapid development of muscle mass and maximise their genetic potential.

At 90 days of age, the average live weight of rabbits in all experimental groups varied relative to the young animals of group I (control) (Table 2). The maximum live weight of one head at this age was in the IV experimental group ($p<0.05$) – 2,850 kg for the use of Activo in the amount of 150 g/t, while for the use of this drug in the diet of feeding young rabbits of group III (100 g), it was 2,765 kg, and group V (200 g) – 2,845 kg.

Table 2*. Growth rate of young rabbits (m ± m, n = 10)*

Group	Live weight of 1 animal		Average daily rates increments, g
	When setting up an experiment, g	At the age of 90 days, g	
I	518 ± 8.04	2,700 ± 39.44	36.3 ± 0.67
II	521 ± 9.27	2,705 ± 41.8	36.4 ± 0.65
III	516 ±6.74	2,765 ± 35.78	37.6 ± 0.56

Table 2, Continued

Group	Live weight of 1 animal		Average daily rates increments, g
	When setting up an experiment, g	At the age of 90 days, g	
IV	523 ± 8.6	2,850 ± 45.95*	38.6 ± 0.62*
V	520 ± 8.66	2,845 ± 53.98*	38.8 ± 0.76*
VI	519 ± 8.84	2,695 ± 56.0	36.2 ± 0.77

Note: *p<0.05; **p<0.01; ***p<0.001*
Source: *compiled by the authors*

It was found that the highest growth rate was observed in young rabbits of groups IV and V, in the diet of which there were 150 and 200 g of dietary supplements per tonne of feed, respectively. There was a significant difference (p<0.05) in these groups compared to the control. The highest average daily increments for the period of 30-90 days were observed in IV (38.6 g) and V (38.8 g) experimental groups, slightly lower – in II (36.4 g) and III (37.6 g), and the lowest this indicator was in young rabbits of the VI experimental group (250 g of Activo per tonne of feed) and amounted to 36.2 g.

Features of rabbit digestion consist in the functioning of highly specialised colonies of intestinal microorganisms, which makes them vulnerable to its destruction in the intestines. The improvement in the productivity of young rabbits was obviously conditioned by the influence of the active components of the biological supplement, which balance the intestinal microbiota and have a complex positive effect on the health of animals.

The best indicators of fattening productivity at the age of 90 days for the introduction of 150 g of Activo per tonne of finished feed were obtained in the IV experimental group, obviously due to the effectiveness of physiological effects essential oils on the process of digestion of monogastric, herbivorous rodents, which was manifested in better food intake. Live weight of rabbits in this group increased by 150 g (p<0.05), average daily gains – by 2.3 g (p<0.05), loin width – by 0.16 cm, feed conversion improved by 200 g.

In particular, studies (Honchar & Shevchenko, 2010; Tsyhanchuk, 2021) on the assessment of the effects of probiotic supplements in the diets of young rabbits indicate positive changes in internal parameters, such as total protein, immunoglobulins and IgG, and changes in intestinal morphology and a positive effect on the microbiota of the gastrointestinal tract, thereby supporting the natural immunity of animals.

The lifetime meat index (loin width) was slightly higher in rabbits of the IV and V experimental groups relative to the control, but without a significant difference (Table 3). The width of the lower back at 3 months of age in rabbits of these groups was 6.86 and 6.84 cm, respectively. When introducing a dietary supplement of 250 g per tonne of finished feed into the diet of experimental rabbits, this figure was 6.62 cm.

Table 3*. Fattening and slaughter indicators of young rabbits at 90-day age, (m ± m, n = 10)*

Group	Indicators				
	Width of lower back, cm	Weight of a paired carcass, g	Slaughter output, %	Feed costs per 1 kg of growth, kg	CAI
I	6.7 ± 0.112	1,352 ± 19.2	50.1	3.8	255
II	6.71 ± 0.114	1,362 ± 25.1	50.4	3.75	254
III	6.83 ± 0.087	1,407 ± 18.7	50.9	3.65	261
IV	6.86 ± 0.083	1,436 ± 23.6**	51.1	3.6	266
V	6.84 ± 0.111	1,434 ± 22.4**	51.12	3.65	267
VI	6.62 ± 0.77	1,355 ± 26.3	50.18	3.85	252

Note: *p<0.05; **p<0.01; ***p<0.001*
Source: *compiled by the authors*

Regarding slaughter indicators, there was a somewhat uneven increase in the weight of a paired carcass. According to this indicator, young rabbits of the IV and V experimental groups with the content of 150 and 200 g of Activo in the diets significantly prevailed in the control group by 84 and 82 g (p<0.01), and in terms of slaughter yield, they had an advantage over all other groups by 0.08-1.02%.

Feed costs in groups I, II, III, V, and VI were 3.8; 3.75; 3.65; 3.65, and 3.85 kg of finished feed per 1 kg of growth, while in group IV they were slightly more efficient and were at the level of 3.6 kg.

Thus, when using dietary supplements in the diet of fattening young rabbits in the amount of 100, 150, and 200 g per tonne of finished feed (III, IV and

V groups) live weight at 90-day age increased by 2.4-5.3%, average daily gains – by 3.5-6.4%, lifetime lumbar width (meat index) – by 2.0-2.4%, feed conversion improved by 4.1-5.6% compared to the control group I. The highest rate of comprehensive assessment indicator (CAI) of young rabbits, based on the average daily growth and lumbar width, was observed in animals of groups IV and V – 266 and 267 g, respectively, compared with 255 g in control animals of group I.

An important place in evaluating the effectiveness of individual elements that are introduced into the current intensive technologies for fattening animals is occupied by calculating the economic efficiency and profitability of the activities carried out, because such an analysis allows assessing the feasibility of introducing the proposed elements of feeding technology into production. Thus, the economic analysis of intensive fattening of young rabbits showed that under the conditions of enrichment of the main diet with different doses of Activo dietary supplement, two main factors that determine the cost of livestock products changed: both the cost of feed and the productivity of animals increased. The main characteristics of the economic efficiency of using Activo are shown in Table 4.

***Table 4**. Economic efficiency of the use of dietary supplements in fattening young rabbits*

Economic indicators	Group					
	I	II	III	IV	V	VI
The cost of 1 kg of dietary supplement, UAH.	1,400	1,400	1,400	1,400	1,400	1,400
The cost of 1 tonne of mixed feed, UAH.	11,000	11,070	11,140	11,210	11,280	11,350
Feed costs per 1 kg of weight gain, kg	3.8	3.75	3.65	3.60	3.65	3.85
The cost of feed per 1 kg of live weight gain, UAH.	41.8	41.5	40.7	40.3	41.2	43.7
Cost of 1 kg of rabbit meat, UAH.	59.7	59.3	58.1	57.5	58.8	62.4
Sales price of 1 kg of live weight of rabbit meat, UAH.	80	80	80	80	80	80
Net income 1 kg of rabbit meat, UAH.	20.3	20.7	21.9	22.5	21.2	17.6
Profitability, %	34	35	38	39	36	28

The data of economic analysis shown in Table 4 indicate that feed costs per 1 kg of growth in all experimental groups, except the last one, were lower than in the control. This indicator was lowest in the IV experimental group for fattening young animals with the addition of a dietary supplement of 150 g/t to the finished feed and amounted to 3.60 kg compared to 3.80 kg in the control group. The cost of 1 tonne of finished feed naturally increased linearly in all experimental groups (from UAH 11,000 to 11,350).

The intensification of animal metabolism with the use of dietary supplements provided an increase in fattening productivity of rabbits, which, in turn, led to a decrease in the cost of feed by 1 kg of growth in the II, III, IV, and V experimental groups by UAH 0.30-1.50 relative to the control group. The cost of feed per 1 kg of growth of animals of the VI experimental group that consumed feed with the addition of 250 g/t Activo was higher (UAH 43.7) than in the control (UAH 41.8).

The increase in the price of finished feed and, accordingly, the cost of feed per 1 kg of increase in the VI experimental group led to an increase in the cost of feeding young rabbits of this group. For other experimental groups, this indicator was lower, reaching a minimum in the IV experimental group, which consumed feed with the addition of 150 g/t of a biological additive.

A similar trend can be traced for the indicator of net profit and profitability of intensive rabbit meat production. The highest profitability of production in terms of direct costs was observed in young rabbits of group IV and amounted to 39%. This experimental group was fed 150 g of dietary supplement per tonne of ready-made complete mixed feed.

With the introduction of different amounts of Activo into the diet, both fattening indicators of young rabbits by group and economic indicators, in particular, the cost of feed as the main cost indicator, changed. With the increase in fattening productivity, the share of feed in the structure of the cost of rabbit growth increased and feed costs per unit of growth decreased.

Thus, it was found that the use of dietary supplements, in particular, at a dose of 100-200 g/t of mixed feed, in the diets of young rabbits in the conditions of intensive production of rabbit meat allows reducing direct costs for the production of 1 tonne of finished products by UAH 2,200 and increase the profitability of production by 5%.

A feature of young rabbits of the newly created chinchilla type (NCCT) is an intensive daily increase in live weight, which can be accompanied by an imbalance in the conversion of feed and cause disruption of the gastrointestinal tract and without correction can lead to diseases or deaths of animals, since in the conditions of intensive production of rabbit meat, the nutritional value of diets changes, new ingredients are introduced, their structure and ratio change (Abdel-Wareth & Metwally, 2020; Abu Hafsa *et al.*, 2022). Under certain conditions, this can lead to enteritis and subsequent death and, accordingly, to a decrease in animal productivity (Petrescu & Petrescu-Mag, 2018; Bashchenko *et al.*, 2020; Puvača *et al.*, 2022).

The use of high-energy diets for young rabbits of the most common commercial crossbreeds Grimaud and Hyla improved feed conversion and increased nutrient digestibility. It was shown by Birolo *et al.* (2022) that a lower protein content in the diet has been shown to reduce nitrogen release by animals without negatively affecting growth, feed conversion efficiency, and carcass slaughter characteristics: both genotypes showed similar growth rates, but Grimaud rabbits achieved a higher slaughter yield than Hyla animals (Abdel-Fattah *et al*., 2008).

One of the ways to avoid such consequences is to include in the technology of feeding young animals new progressive, innovative additives that stimulate appetite, digestibility of feed, or have a calming effect on the intestines of animals (Hunchak *et al*., 2015; Jakubowska & Karamucki, 2021). Biological nature supplements to the diet of poultry, pigs, and cattle contain, in particular, plant metabolites of secondary origin (essential oils) and have a pronounced antimicrobial and antioxidant effect on the animal body, have a complex effect on the gastrointestinal tract, and also contribute to increasing the body's resistance to adverse environmental factors (Soltan, 2008; Samudovska & Demeterova, 2010; Lahlou *et al*., 2021). The result of this impact is an improvement in feed conversion, an increase in average daily weight gain, a reduction in fattening time, a reduction in animal deaths, and a significant economic effect (Bashchenko *et al*., 2020; Wu, 2022). The positive effect of additives of this type is conditioned by the synergistic effect of biologically active substances in the composition of essential oils from aromatic and medicinal plants, in particular, thyme, rosemary, and oregano (Stefanyshyn *et al*., 2017; Lahlou *et al*., 2021).

The use of essential oils of thyme (*Thymus vulgaris*), oregano (*Origanum vulgare*), and rosemary (*Rosmarinus officinalis*) in feeding attracted attention as potential substitutes for antibiotics that stimulate the growth of broiler chickens in terms of productivity, increased immunity and improved quality indicators of the resulting meat. Due to differences in the composition and origin of raw materials for the production of essential oils, the effectiveness of their use may differ significantly (Jakubowska & Karamucki, 2021). Despite this, the positive effect of essential oils as natural growth stimulators in broiler feeding has been shown by researchers (Legendre *et al*., 2018; Lahlou *et al*., 2021). The mechanisms of action of preparations made on the basis of essential oils on metabolic processes are still not clearly described, since there is little information about the effectiveness of their effect on the absorption of nutrients, the work of the intestines or the immune system of animals, but it has been shown that the addition of essential oils to feed inhibits the growth of pathogenic microflora in the gastrointestinal tract (Jakubowska & Karamucki, 2021; Lahlou *et al*., 2021). In the conducted studies (Stefanyshyn *et al*., 2017) the positive effect of biologically active substances of essential oils in the composition of the dietary supplement was found both in improving the life and slaughter indicators of young rabbits, and in the absence of diseases of the gastrointestinal tract or animal deaths during studies.

Biologically active components of essential oils of thyme, oregano, and rosemary stimulate the activity of beneficial bacteria, thus contributing to the balance of microflora, that is, they are an effective prerequisite for protection against pathogenic microorganisms (Abdel-Fattah *et al*., 2008; Puvača *et al*., 2022). Increasing the number of beneficial bacteria not only reduces the number of available substrates for pathogens, but also stabilises the pH of the intestine, ensuring optimal activity of pancreatic enzymes, which further leads to improved nutrient absorption and, accordingly, improved productive characteristics (Jakubowska & Karamucki, 2021; Puvača *et al*., 2022). There are also data on the anticoccidial activity of thyme and rosemary essential oils on the body of chickens (Lahlou *et al*., 2021).

Thus, a variety of biologically active substances – probiotics, lysozyme, etc. – contribute to the balance of the complex microbiota of the gastrointestinal tract of rabbits, which plays a crucial role in the digestion of feed, in the endogenous synthesis of vitamins, in stimulating the metabolism of animals, the development of an adequate immune response, and in protecting against infections, pathogens, and countering adverse environmental factors.

CONCLUSIONS

For intensive fattening of young rabbits of the newly created chinchilla type, a mixed feed recipe was developed based on local feed ingredients: barley turf (10%) and oats (10%), wheat bran (10%), sunflower meal (20%), alfalfa flour (35%), table salt (0.4%), premix (3.1%).

Optimisation of the main diet of young rabbits by adding 100, 150, and 200 g/t of Activo led to an increase in their productivity: live weight of individuals at 90-day age increased by 2.4-5.3%, average daily weight gains – by 3.5-6.4%, lifetime width of the lower back – by 2.0-2.4%, feed conversion under such conditions improved by 4.1-5.6% relative to the control. The mass of the paired carcass of young rabbits that received the main diet with the addition of 150 and 200 g/t of dietary supplements was significantly higher compared to the control by 84 and 82 g, respectively. The slaughter yield of rabbits in these experimental groups was 51.10 and 51.12%, respectively, compared to 50.1% in the control group. Analysis of the cost of finished feed per 1 kg of growth showed that this indicator was most effective in animals receiving a diet optimised by adding 150 g/t of dietary supplement, where it was at the level of 3.6 kg against 3.8 kg in the control.

The use of Activo in the amount of 150-200 g/t of mixed feed in the diets of young rabbits with intensive production of rabbit meat reduces direct costs for the production of 1 tonne of rabbit meat by UAH 2,200 and increases the profitability of production by 5%.

Thus, optimisation of the diet of young chinchilla rabbits with intensive production of rabbit meat

by adding 150 and 200 g/t of dietary supplements to mixed feed contributed to the improvement of lifetime meat content and slaughter yield while reducing feed costs and increasing its conversion, which ensured a reduction in direct production costs. The use of dietary supplements as a component of intensive fattening of young rabbits contributed to the absence of the incidence of gastroenterocolitis and other diseases of the gastrointestinal tract in animals and ensured the absence of cases of animal deaths during studies.

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Вплив рослинної біодобавки на продуктивність молодняку кролів

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Анотація. Пошук елементів технологій та препаратів природного походження, які поліпшують роботу кишково-шлункового тракту тварин є актуальним з огляду на те, що інтенсивні технології вирощування передбачають використання значної кількості різного роду антибіотиків, які знижують імунітет і негативно позначаються на якості отриманої м'ясної продукції. Перспективними в цьому напрямку є препарати, розроблені на основі біологічно активних речовин з ефірних олій лікарських та пряно-ароматичних рослин. У дослідженнях використано біодобавку «Активо», рекомендований для годівлі птиці та свиней, створений на основі ефірних олій розмарину, материнки, чебрецю. Саме тому метою досліджень було з'ясувати ефективність та безпечність використання біодобавки, як елементу інтенсивного виробництва кролятини. Методи досліджень – зоотехнічні, лабораторні, статистичні. Для інтенсивної відгодівлі молодняку кролів новоствореного шиншилоподібного типу було розроблено рецепт комбікорму на основі місцевих кормових інгредієнтів. Встановлено, що додавання до раціону відгодівельного молодняку кролів «Активо» в кількості 100, 150 і 200 г/т, їхня продуктивність у 90-добовому віці зростала, зокрема жива маса – на 2,4–5,3 %, середньодобові прирости – на 3,5–6,4 %, прижиттєва ширина попереку (показник м'ясності) на – 2,0–2,4 %, конверсія корму покращувалася на 4,1–5,6 %. Показано, що використання біодобавки в кількості 150–200 г/т комбікорму в раціонах молодняку кролів за інтенсивного виробництва кролятини дає змогу зменшити прямі затрати на виробництво 1 т кролятини на 2200 грн. та підвищити рентабельність виробництва на 5%. Отже, застосування біологічної добавки як елементу інтенсивної відгодівлі молодняку кролів сприяє покращенню прижиттєвої м'ясності та забійного виходу молодняка кролів за одночасного зниження затрат готового корму та зростання його конверсії, що призводить до зниження прямих затрат на виробництво

Ключові слова: інтенсивне кролівництво, індекс комплексної оцінки, місцеві корми, відгодівельні та забійні показники