СПИСЪК

На резюметата на научните трудове на доц. д-р Магдалена Георгиева Облакова отдел "Селекция, популационна генетика, технологии на птици и зайци" Земеделски Институт- Стара Загораза за участие в конкурс за академична длъжност „Професор" по научна специалност „Развъждане на селскостопанските животни, биология и биотехника на размножаването" (шифър 04.02.01.) професионално направление 6.3. Животновъдство

1. Облакова М., С. Георгиева, 2006. Влияние на гама- лъчите върху онтогенезата на Coturnix Coturnix japonica. Съюз на учените Стара Загора, Международна научна конференция 1- 2 юни, Стара Загора, 2006, с. 287- 291.

ABSTRACT

The study was done at the laboratory of Ontogenetic. Department of genetics, Agricultural Faculty, Tracia University, Stara Zagora. For the purpose five groups of birds were designed at the age of 90 days at sexual rate 1:1. First group- control noiradiated birds, second group- females exposed to gamma radiation at dose 100 rad for 1.02 min. third proup where the males were exposed to 200 rad irradiation for 4.04 min. Fourth group- femails were exposed to 300 rad for 3.08 min. The concentrate feeding was done in accordiance with age and cathegory of the birds with wel establishedoptimal zoohygienic parameters. For the purpose of description of embrio development and embriogenetic change, one egg per each group was open, randomly, every day. The percentage of conception and hatchability, and productivity up to 120 days of age were registrated. The study showed that the normal embryogenesis in Coturnix coturnix japonica was more intensive demonstrated trouth the shorted incubation period. Low doses gamma irradiation caused certain abnormailities in embrios, such as head malformation, legs flexis, one-site development of the eyes and sometimes, problems, in embrio development. The low gamma irradiation had also, negative effect on conception and hatchability mainly acting over ovum.

2. Н. Минчева, ***М. Облакова***, М. Лалев, 2006. Възможности за използване на линии от генофонда за създаване на популации кокошки с цветно оперение. Съюз на учените Стара Загора, Международна научна конференция 1- 2 юни 2006, Стара Загора, с. 310- 315.

ABSTRACT

It was studied one of the possibilities for creation hens populations With colour plumage on the base of gene stock lines from Poultry Hybrid Centre. The first hens population, originated from a mating between the Light Sussex (LS) and line G - New Hampshire hens (GNH) is characterized by the silver down and by the Columbian adult plumage. The chicks from second population, obtained from a cross between the Black Shoumenska (BSH) and MRE line (mini barred hens) are black with yel-lowish ventral surfaces and wing tips. Adults were with black plumage. The results suggested that the new hens populations (LS x GNH and BSH x MRE) had gene formulas, similar to those of the Light Sussex and Black Shoumenska, respectively. The sex-linked k allele (rapid feathering) was more frequent in LS x GNH population than the Light Sussex. The gene frequency of k* allele at the K locus in BSH x MRE population and BSH was 1.0.*

3. Христакиева П., ***М. Облакова***, М. Лалев, 2006. Проучване продуктивността на пуйчета-бройлери II. Екстериорни измерения. Съюз на учените Стара Загора, Съюз на учените Стара Загора, Международна научна конференция 1- 2 юни 2006, с. 350- 360.

ABSTRACT

The aim of present study was to establish the exterior measurements in five groups turkey broilers at different age and the relation with the live weight. The study was done at the turkey farm of the Agricultural Institute. By means of artificial insemination through five initial lines turkeys, five experimental groups were obtained. The turkey broilers were reared by a traditional technology with, established optimal parameters. Individual exterior measurements were done at the age of 4, 8,12 and 16 weeks in 30 males and 30 females birds of each group having the average live weight of the group. Exterior measurements of the thorax at the age of 8,12 and 16 weeks had the highest values of the live weight in both sexes of the birds from the first group. The turkey- broilers from the III, IV and V group had the highest values of the indicator- legs and lowest live weight. The mass index at the age of 16 weeks had the highest values in the birds from the I and II group for both sexes and the highest live weight. This relation could be used for production of the meat characteristics in turkey- broilers.

4. Христакиева П., ***М. Облакова***, М. Лалев, 2006. Корелативни зависимости между някои продуктивни показатели при пуйчета- бройлери. Съюз на учените Стара Загора, Съюз на учените Стара Загора, Международна научна конференция 1- 2 юни 2006, с. 344- 350.

ABSTRACT

The aim of present study was to establish the relations between old turkey- broilers and weigth in five groups 16 weeks old turkey- broilers, and live weight registrated in dynamics in the course of the age. The experiment was done at the turkey farm of the Agricultural Institute- Stara Zagora. Five initial lines were artificially inseminated (by the sheme 1) such as five groups were obtained In this way. It was followed the live weight in dynamics- at start level at 2,4,6.8,10,12,14 r 16 weeks of age by sex, trougth individual measurement of the weigth. within 5 g difference. Individual exterior measurement in 30 mails and 30 females turkey- broilers from each group, having the average live of the group, at 16 weaks of age were done. Phenotypic correlations were calculated on the base of the following indicators: body lenth, size of the thorax, sternum length, thigh length, subthigh length, methatarsus length, thorax width, thorax depth. It was established that the relations between live wegth and indicators width and size of the thorax in birds of the I and II group at the 16 week had the highest values, wich was the best criterion for the meat purpose breeding. Correlations between live weigths over the different periods had significant and high values in all five groups. This could contribute to the early age prediction of the live weight.

5. ***Облакова М.,*** 2007. Weigth development and body configuration of turkey- broiler parents BIG-5. Trakia journal of sciences, v. 5, 1, p. 28- 33.

ABSTRACT

Because of the short generation-related period of use, the breeding value of fowl is determined in the earliest age. With regard to selection, the timely evaluation of parents is particularly essential. The aim of the present study was to investigate the production traits of parental turkey line imported and reared in the Hybrid Centre of Poultry Breeding. The live body weight of turkeys aged 4-20 weeks was determined. We evaluated also the following valuable quantitative exterior traits that influence the conformation of the body: stockiness, massive ness and length of

the legs. Consequently the following conclusions can be drawn: the growth of BIG 5 turkeys was the most intensive during the 8th– 12th weeks of age. By 20 weeks they reached a live body weight of 9.5 kg. The increase in body parts was regular; the stockiness and massiveness indexes increased due to the more intensive development of the principal productive traits characterising meat production: breast circumference and live body weight.

6. ***Облакова М.,*** 2007. Weigth development and body configuration of turkey- broiler parents BIG-6. Trakia journal of sciences, v. 5, 1, p. 33- 40.

ABSTRACT

The parameters characterizing meat production traits of turkeys are some external indices: body length, breast circumference, keel length, breast depth and total leg length. The body conformation type and the meatiness of turkeys could be better expressed via the massiveness index, the stockiness index and the long- leggedness index The purpose of the present study was to investigate production traits of 4-20 week-old male turkeys- parents- BIG- 6, available in our breeding centre. The live body weight and the quantitative exterior traits that influence the conformation of the body were measured. Other principal selection indexes, stockiness, massiveness, and long- leggedness were measured. The animals attained a live body weight of 14.9kg after 20 weeks. The nine body measurements increased consistently during the entire period with breast circumference being the highest. By the age of 20 weeks turkey poults from the BIG 6 had a stockiness index of 129.30% and massiveness index of 31.87%- traits for solidity of the body and clearly defined traits for meat- type turkeys.

7. Бакаливанова, Т., Ст. Григорова, В. Средкова, ***М. Облакова***, М. Лалев, 2007. Морфологична характеристика на стокови яйца от хибрида Bovans Braun преди и след линеене. Съюз на учените Стара Загора, Международна научна конференция 7- 8 юни, 2007, с. 100- 106.

ABSTRACT

The study of commodity eggs from layers of hybrid Bovans braun was carried out in the periods prior to and post induced molting. The morphology indices of eggs were analyzed in the first and the second cycle of productivity of the layers and the factors "age" and "molting" were determined. The weight of the whole egg and this of the white and this of the yolk were significantly influent by the age of hens but not by the molting. With the progress of the age of the layers in the two cycles of laying capacity the weight of the whole egg and this of the yolk increased and the raise in the weight of the yolk was predominating in the first cycle. The weight of the shell egg increased in two cycle of laying capacity and the growth was greatly in the first cycle than the second cycle and related to form of the egg. The thickness of the shell egg was within the limits of 0.40mm and was not significantly changed in the first productive cycle and decreased significantly to 0.21 mm in the second productive cycle. The shape index was affected significantly by the age of hens and not by the molting while the index of the white and this of the yolk were significantly influenced by the age of hens and by the molting. In a period post molting with the progress of the age of the hens the liquid white showed tendency to increase and the compact white- to decrease and the diameter of yolk- to increase, for the reason that the yolk membrane were stretched.

8. Димитров Г., Т. Бакаливанова, Ст. Григорова, ***М. Облакова***, М. Лалев 2007. Липиди на яйчен жълтък на стокови носачки от хибриди Bovans Braun преди и след линеене. Съюз на учените Стара Загора, Международна научна конференция 7- 8 юни 2007, с. 107- 114.

ABSTRACT

LC were significantly influenced by the factor "age" in whole first period of laying opacity and not in the second. The factor induced moult" had no significant influence on the LC of the yolk.Palmitic aciu predominated among the saturated fatty acids, followed by stearic acid, whereas oleic acid had the highest content of al! the unsaturated fatty acids, followed by linoleic and arachonic acids. The eggs of hybrid "Bovans braun" contain W-3 and W-6 polyunsaturated fatty acids that have exceptional role for human health. During two cycle of laying capacity the SFA/MUFA ratio was near 1.0 and the ratio SFA/PUFA approximated to 2.0, which indicated balance among these fatty acid groups and high nutritional value of the eggs. The age of the hens and the induced moulting did not affect significantly the summarised values of the three fatty acid groups.After induced moulting, with the progress of the age of the layers, the summarised value of SFA and MUFA tended to decrease and those of the PUFA- to increase, which is a good for nutritional value of eggs after the induced moulting.

9. ***Oblakova M.***, M. Lalev, P. Hristakieva, 2007. Correlations among exterior body measurements in turkey- broiler female parents BIG 5. Union of Bulgarian scientist, Stara Zagora, International science conference, Stara Zagora, June 7- 8, 2007, p. 161- 165.

ABSTRACT

Thirty female turkeys BIG 5 at the ages of 6, 12, 16, 20 weeks were used. The aim of the present study was to determine the phenotype correlations among the principal body measurements. The data show that live weight at the age of 6 weeks had positive correlations with the studied body dimensions, with a high statistical significance. At the age of 16 weeks, the results showed that the influence of live body weight on the parameters of- the other body dimensions was preserved; body length and breast circumference at r=0.41 breast width and depth at r=0,40 (p< 0.05). The results showed at the age of 20 weeks, live body weight correlated positively with all body dimensions in the study of female turkeys, but at different statistical levels- A preservation of the tendency for high correlation between living body weight and breast circumference was observed: r=0,764 at p< 0.001. The correlations between live body weight and the other studied body dimensions during the different development periods were statistically significant and high. With advancing of age, the most constant correlation was the one between live body weight and breast circumference, which can be used in selection at an early age, and to predict the live body weight of adult turkeys.

10. ***Oblakova M.***, M. Lalev, P. Hristakieva 2007. Correlation among exterior body measurements in turkey- broiler male parents- BIG 6. Union of Bulgarian scientist, Stara Zagora, International science conference, Stara Zagora, June 7- 8, 2007, p. 166- 170.

ABSTRACT

Thirty male turkeys BIG'6 at the ages of 6, 12, 16, 20 weeks were used. In order to establish the phenotype differences between lines, measurements of 9 exterior body parameters were performed with a precision of 1 cm: body length, breast circumference (with a band), breast width and depth, keel length, shank length, femur length, metatarsal length, total leg length. On the basis of obtained results, the correlations between body parameters and among body parameters and the live body weight were derived. Live body weight correlated positively and

highly to all studied body measurement at the age of 6 weeks at p< 0.001. At the age of 12 and 16 weeks, the body weight of male BIG 6 turkey-broilers could not be an indirect parameter for the development of the other body parts. Among the other body dimensions as breast width-breast depth and breast circumference, there were significant positive correlations with coefficients of r= 0,690; r= 0,590 at p< 0.001. A high positive correlation existed between breast depth and breast circumference (r= 0.700; p< 0.001). At the age of 20 weeks, the live body weight could be predicted on the basis of body length, breast width and breast circumference- the correlation was positive and high (r=0.620, r=0.820 u r=0.820 respectively).

11. Христакиева П., ***М. Облакова***, М. Лалев, 2007. Проучване възпроизводителните качества на изходни линии пуйки. Съюз на учените Стара Загора, Международна научна конференция 7- 8 юни 2007, с. 115- 120.

ABSTRACT

The experimental was done at the local breeding farm of the Hibrid Center of Poultry Breeding- Stara Zagora. Turkey hens from the lines: Super Heavy (SH), Meat Heavy (MH) Layer heavy (LH), Layer Light (LL), North Caucasian Bronze (NCB) were used. The age to into lay, the volume to laying, was made Percent of fecundate and hatch of the eggs. Line LH laying the turkeys Year old 205 days, and the turkeys from line- MH in 240 days. The average hath for 150 days and the intensity to laying is highest with the turkeys from LH line due 81. 25%- number of eggs and 54. 16 percent as well lowest of MH line 41. 42 of number of eggs and 27. 61 percent. Largest number of inseminated eggs in dependence for have MH- turkey- 91. 55 percent and lowest percent fecundate of the eggs have SH turkey- 82. 02 percent. Highest percent hatch of the inseminated of eggs have the eggs of the LH turkeys with the fourth nest 79. 31 percent and first nest- 79. 01 percent.

12. Димитров С., Т. Бакаливанова, Ст. Григорова, В. Средкова, ***М. Облакова***, М. Лалев, 2008. Изследване върху някои показатели на стокови яйца и кокошки носачки от хибрида Bovans B raun преди и след линеене. Животновъдни науки, 4, 66- 72.

ABSTRACT

A study of commodity eggs from layers of hybrid Bovans braun was carried out in the periods prior to and following induced molting. The laying capacity, cracked eggs and the mortality (in %) were examined. The indices of the whole egg and the egg content were analyzed in the first and second cycle of the productivity of the layers. It was found that the peak of laying capacity was 90% in the 26th week of the first cycle of productivity of the layers and it was 86% between the 80th and the 81st weeks in the second one. The cracked eggs were 0.66% in the first phase of productivity and 3 times more in the second one. The weight of the whole egg and this of the white and yolk were significantly influenced by the age of the hens in the two cycles of laying capacity but not by the molting. The weight of the shell egg was significantly influenced by the age of the hens in the two phases of laying capacity and by the molting as well. The thickness of the egg shell was within the bounds of 0.40 mm and was not significantly changed in the first productive cycle. It was significantly decreased to 0.21 mm in the second productive cycle. The pH of the egg content was changed significantly in the two laying cycles but the pH of the yolk was not affected significantly by the molting. The analyzed eggs were used for the 25th month in the second cycle of laying capacity due to the induced molting.

13. Христакиева П., ***М. Облакова***, М. Лалев, 2008. Зависимост между масата и инкубационните качества на пуйчи яйца. Животновъдни науки, 4, 85- 90.

ABSTRACT

The eggs from three turkey lines were included in the study. The eggs were distributed in three groups depending on their weight. The percent of hatching as a part of the charged eggs and the hatching from the inseminated eggs were determined after the incubation of the turkey eggs. They were weighed and the percentages were calculated per weight group. It was found that the eggs from the heaviest weighing group of the turkeys from the Heavy line had the lowest fertility of 76.67%. The percentages of the hatched eggs from the stocked ones as well as of the hatched eggs from the inseminated ones were the highest for the sub- middle level to about the middle level table as well as for the corresponding line, in comparison to the heaviest eggs. For the three weighing groups of the reviewed lines the loss of weight of the eggs from the initial one was from 65.59 percents up to 72.19 percents, which makes them eligible for hatching.

14. ***Oblakova M.,*** M. Lalev, P. Hristakieva, S.Georgieva, 2008. Effect of egg weight on the productive traits of hatched turkey poults not latar than 16 weeks. Trakia journal of sciences v.6, N 4, p. 83- 87.

ABSTRACT

The experiment was performed in 2007 in the selection farm of the Agricultural Institute, Stara Zagora. The eggs were products of artificial insemination in turkeys, aged 36 weeks, of the Layer Light (LL) strain. After hatching, the hatching percentage of incubated and the hatching percentage of fertilized eggs were determined, the percentage of the weight of poults from the weight of incubated eggs. In order to establish whether the egg weight had any effect on the growth potential of turkeys, 15 LL poults of both genders in each egg group were reared. Total forage consumption, survival rates and body weight at some chosen ages were recorded. The heaviest turkey poults were hatched from the heaviest eggs; the percentage ratio of these weights to the egg weight was 71.48 % and 70.63%, respectively. After 10-12 weeks, the death rates became stable and then decreased up to the end of the experimental period. Our study did not show weight of turkey eggs displaying a significant effect on the growth of turkey by age 16 weeks. Accordingly, eggs from all studied weight groups could be used in the production of turkeys.

15. Георгиева С., С.Танчев, Г. Пенчев, ***М. Облакова***, 2008. Влияние на инбридинга върху репродуктивните признаци на мъжки зайци. Съюз на учените Стара Загора, Международна научна конференция 5- 6 юни, Електронно издание на диск.

ABSTRACT

The aim of the study was to investigate and compare some reproductive feature- histostructure and morphological speciality of testes in relation with sperm production in male inbred and outbred rabbits. The level of inbreeding in experimental groups was Fx=0, Fx=0.25. The results show that aplyed level of inbreeding Fx=0.25 and Fx=0.50 lead to significant morphometric disturbance in testes as well as decreasing the quality of semen. We found differentes in studed features between group with different levels of onbreeding and increasing of inbred depression depending on inbreeding level.

16. Hristakieva P., ***M. Oblakova***, M. Lalev, 2009. Incubation and vital morphological traits in eggs from age- related turkeys. Trakia journal of sciences, vol.7, 1, p. 63- 67.

ABSTRACT

The experiment was performed in the selection farm of the Agricultural Institute, Stara Zagora, "Poultry breeding and production technologies" section in 2008. Eggs produced by turkeys of the Heavy Meat (HM) strain at the age of 32 and 44 weeks were used. The incubation traits were studied on all newly- laid eggs with hatching potential. The early embryonic death rate (EED) was determined at first week of incubation at following defined periods: I- formation of embryonic disk (incubation days 0-3) and II- after formation of the embryonic disk (incubation days 4-7). The embryonic death was determined by examinations by Day 25 and by the time of placing eggs in the hatching chamber. The eggs of the Heavy Meat hybrid turkeys, aged 32 weeks, showed a higher fertilization rate- 91.92%., higher early embryonic death rates: 1.35% up to the 3rd day of incubation and 2.02% up to the 7th day, vs. 0.88% (up to day 3) and 0.88% (up to day 7) in eggs laid by turkeys aged 44 weeks. The hatchability of placed and fertilized eggs was higher for eggs from younger layers (age of 32 weeks) compared to those laid by turkeys at the age of 44 weeks.

17. ***Облакова М.***, П. Христакиева, Митко Лалев, 2009. Кланичен анализ на пуйчета излюпени от яйца с различна маса. Съюз на умените Стара загора 4- 5 June, с. 162- 166.
Union of Bulgarian scientist, Stara Zagora, International science conference, Stara Zagora, 4-5 June, p.162- 167.

ABSTRACT

The present study was carried out in the breeder turkey farm of the Agricultural Institute, Stara Zagora with eggs of Layer Light (LL) turkeys at the age of 36 weeks, artificially inseminated. After the 20th week of age, three male and three female turkey poults with an average live weight gain were slaughtered. After a 12- hour fasting, slaughter analysis was performed according to 19 parameters. On their basis, the slaughter yield and the percentage ratios of the different body parts were calculated. It was found out that the dressed carcass, breast muscles and the slaughter yield of male turkey poults at the age of 20 weeks, hatched from eggs of the highest weight group, were superior to those of the other groups at $p<0.05$. The highest weight for the 20- week period was those of female turkeys of group II- 7500g, followed by group III- 7100g and group I- 6900 g at $p<0.01$. Breast muscle of turkey poults from group II was statistically significant higher by 1800g as compared to the other groups (group I: 1690g, group III: 1716.67g). Within the studied egg weights, a tendency towards influence on the slaughter traits, directly related to growth and development of one-day old male turkey poults; was present. For the production of turkeys, eggs from all three studied categories could be used.

18. Бозакова Н, Д. Запрянова, Т.М. Георгиева, ***М. Облакова***, Кр.Стоянчев, И. Йотова, М.Лалев, 2009. Хормонално- биохимични аспекти на благополучието на пуйки родители през горещ летен период и възможности за подобряването му чрез добавка на аргинин във фуража. Union of Bulgarian scientist, Stara Zagora, International science conference, Stara Zagora, 4- 5 June, p. 168- 174.

ABSTRACT

In tropical and subtropical regions the problem for using different feed supplements for improvement poultry welfare is actually relevant under the specific production condition.

Reliable indicators of poultry welfare, together with the behaviour, are the changes in plasma corticosterone levels and the related alterations in some blood biochemical indices. The aim of the present study was to follow the changes in plasma corticosterone levels and some blood biochemical indices in turkey hens during thermoneutral and hot summer period, as well as the possibility for their welfare improvement by supplementation of feed with 1% arginine during hot summer days. The plasma corticosterone levels were assayed by immunoenzymatic ELISA, and the biochemical blood indices- by automated analyzer BA- 88 and commercial kits. The high temperatures and low air humidity during hot summer days were a considerable stress- factor for turkey hens and they provoked significantly higher plasma corticosterone levels, than the levels during thermoneutral period. The 1% arginine supplementation during hot summer days significantly reduced plasma corticosterone levels and the blood concentrations of cholesterol, creatinine, urea and total protein in turkey hens, thus 6 evidencing the improvement of poultry welfare.

19. ***Oblakova M.***, K. Stoyanchev, N.Bozakova, M. Lalev, I. Yotova, 2009. Effect of ecological comfort and ecological stress on productive trains of broiler turkey with experimentally induced muscular dystrophy. Bulgarian Journal of Veterinary Medicine, 12, 3, 192- 198.

ABSTRACT

The experiment was performed with four groups of broiler turkeys: I- control, reared under condi tions of ecological comfort, II- control, reared under conditions of ecological stress, III- birds suffering from muscular dystrophy (MD), reared under conditions of ecological comfort, and IV- birds with MD, reared under conditions of ecological stress . The turkeys from groups I and III were kept in the same room separated into two sections where the microclimate was set in accordance with the requirements. Groups II and IV were kept in room where the microclimate: higher temperature, lower-air humidity, and a concentration of ammoni a close- to the maximum all owed. The conditions of ecological comfort, had a positive effect on. the live weight of the birds during the first 14 days for both healthy: and' MD birds .During the first 14 days of rearing under ecological stress, weight gain was increased, regardless of whether they suffered from muscle dystrophy or not. However; during the following period until the 70'th day, rearing under such conditions marked a slower development for diseased birds.

20. ***Oblakova M.***, Kr. Stoyanchev, N. Bozakova, M. Lalev & I. Yotova, 2009. Hereditary musculoskeletal diseases and changes in biochemical parameters in healthy and diseased light (LL) and heavy (HM) turkey parents and turkey broilers during growth under environmental stress and comfort. Trakia Journal of Science, Volume 7, № 4, p. 46- 50.

ABSTRACT

The aim of this study was to determine the affect of hereditary musculoskel et al diseases (HMSD) to the blood serum parameters and enzyme activity in turkey parents from light laying and heavy meat breed, as well as the impact of conditions of environmental comfort and environmental stress on biochemical changes in turkey broilers. Muscular dystrophy expression was on the 80- th day, and on the 46- th day in parents and broiler, respectively. Data on the level of liver enzyme creatine kinase (CK) in the group of turkeys with HMCD showed a decrease compared with control group. The increase is observed in the change of the enzyme activity of aspartate aminotransferaze (ASAT) and alanine aminotransferaze (ALAT). In turkey broilers under the stress conditions, the changes of enzymes were more severe, instead of the lower rate of muscular dystrophy compared to parents

21. Bozakova N., ***M.Oblakova***, K. Stoyanchev, I.Yotova, M. Lalev, 2009. Ethological aspects of improving the welfare of turkey breeders in the hot summer period by dietary L- arginine supplementation. Bulgarian Jurnal of Veterinary Medicine, 12, 3, 185- 191.

ABSTRACT

The utilization of food additives to improve poultry welfare during the hot summer months is essential under farm production conditions. The most accurate indicator for that is the behaviour of birds. The aim of this study was to observe the changes in the behaviour of turkey breeders during a thermoneutral and hot summer period (32oC), as well as the possibility to improve their welfare through the addition of 1% L-arginine in their feed during the hot summer days. The behaviour of the turkey breeders was observed with a video camera. During the hot summer period there was a significant increase in turkey breeders exhibiting drinking and aggressive behaviour, while there was a de- crease in the number of birds performing dustbathing, feather pecking, egg-laying, and sexual behaviour. The addition of 1% arginine to the feed contributed to a significant improvement in turkey breeders' welfare during the hot summer period, which was manifested through more frequent dust- bathing, improved egg-laying and sexual behaviour, as well as less aggression among birds.

22. Бозакова Н., ***М. Облакова***, М. Лалев, Л. Сотиров, Кр. Стоянчев, И. Йотова, 2009. Възможности за намаляване влиянието на топлинния стрес върху някои продуктивни показатели при пуйки родители чрез добавка на L- аргинин във фуража. Животновъдни науки, 6, с. 25-31.

ABSTRACT

The utilization of food additives to improve poultry productivity during the hot summer months is essential under farm production conditions.^ 9The aim of this study was to observe the changes in the productivity of turkey breeders during a thermoneutral and hot summer period (32°C), as well as the possibility to reduce heat stress and preserve the egg production and the body weight of turkey hens through the addition of 1 % Z-arginine in their feed during the hot summer days. The changes in the plasma corticosterone levels by immunoenzymatic ELIS A- assay during a thermoneutral and hot summer period were used as an index for heat stress. The observations were performed in the turkey farm in the village of Malko Kadievo. The daily egg productivity and body weight of turkey hens were determined from the productivity indexes.

23. Лалев М., И. Иванова, П. Христакиева, ***М. Облакова***, Н. Минчева, 2010. Използване на граха като източник на протеин в смески за пилета бройлери. Животновъдни науки, 2, 60- 67.

РЕЗЮМЕ

Опита бе проведен с по 50 броя предварително сексирани еднодневни пилета от двата пола във опитна и контролната група, получени от линии от генофонда на ХЦП. Отглеждането беше групово при постоянен достъп (ad libitum) с комбиниран фураж съобразен с възрастта и категорията на птиците. до 49- дневна възраст. Пилетата от контролната група получаваха традиционен комбиниран фураж за съответния период, а опитната група- комбиниран фураж с 10% грах. По време на опита се контролираше живата маса на пилетата чрез индивидуално претегляне с точност до 1g на 1, 14, 28, 42- и 49-дневна възраст. Отчитана е консумациятана фураж и оползотворяването му по групи за периодите от излюпването до 14-дневна възраст, от 14 до 28, от 28 до 42- и от

42-ри до 49- дневна възраст. В края на периода бе направен кланичен анализ на по три мъжки и женски пилета- бройлери с жива маса средна за групата, след 12 часово гладуване по 8 показателя. Въз основа на тях беше изчислен кланичния рандеман и процентните съотношение между отделните телесни части. Интензитетът на растеж се запазва висок до 49-дневна възраст при мъжки и женски пилета бройлери, угоявани с комбинирани фуражни смески с 10% грах, като достигат средна жива маса съответно 1949,34 g и 1891,28 g. Разхода на фураж за 1 kg прираст за целия период е по- нисък с 11.69% и 10.27%, съответно при женските и мъжките от опитната група. Бройлерите угоявани с комбиниран фураж с 10% грах в състава си до 49- дневна възраст имат по-висока жива маса, маса на братфертинга, бутчетата, грила, гърдите и ядимите вътрешности .

24. Лалев М., И. Иванова, Н. Минчева, ***М. Облакова***, П. Христакиева, 2010. Използване на сух спиртоварен остатък от пшеница при угояване на пилета бройлери. Животновъдни науки, 2, 26- 36.

РЕЗЮМЕ

Опита бе проведен с по 50 броя предварително сексирани еднодневни пилета от двата пола във опитна и контролните групи, получени от линии от генофонда на ХЦП. Отглеждането беше групово при постоянен достъп (ad libitum) с комбиниран фураж, съобразен с възрастта и категорията на птиците до 49- дневна възраст. Пилетата от контролната група получаваха традиционен комбиниран фураж за съответния период, а опитните групи - комбиниран фураж с 3-6-9% ИСОЗ и 6-12-18% ИСОЗ. По време на опита са контролирани - живата маса на пилетата на 1, 14, 28, 42- и 49-дневна възраст. Отчитана е консумацията на фураж и оползотворяването му по групи за периодите от излюпването до 14-дневна възраст, от 14 до 28, от 28 до 42- и от 42-ри до 49- дневна възраст.В края на периода бе направен кланичен анализ на по три мъжки и женски пилета- бройлери с жива маса средна за групата, след 12 часово гладуване по 8 показателя. Въз основа на тях беше изчислен кланичния рандеман и процентните съотношение между отделните телесни части.Включването на 3-6-9% ИСОЗ и 6–12-18% ИСОЗ към комбинираните фуражи за пилета бройлери, угоявани до 49- дневна възраст, води до достоверно увеличаване на живата маса в сравнение с контролната. Разхода на фураж за 1 kg прираст за целия период е по- нисък с 4.58% и 9.58%, съответно при женските и мъжките от II опитна група, а при III опитна група 7.90% при женските и 13.69% при мъжките. Разликата между двети опитни групи е съответно 3.48% за женските и 4.55% за мъжките. Комбинираните фуражи с различно процентно участие на ИСОЗ за пилета бройлери, угоявани до 49- дневна възраст води до по - високо тегло на братфертинга, бутчетата, грила, гърдите, ядимите вътрешности. Храненето с комбинирани фуражи съдържащи 3-6-9% ИСОЗ води до 44.76 лв. за тон по – малко през финишерния период, а с фуражи съдържащи 6–12-18% ИСОЗ до 95.68 лв. за тон също през финишерния период спрямо контролната група. Храненето с комбинирани фуражи съдържащи 3-6-9% ИСОЗ води до понижаване на комбинирания фураж с 44.76 лв. за тон през финишерния период, а с фуражи съдържащи 6- 12- 18% ИСОЗ до 95.68 лв. за тон за същия период.

25. М. Лалев, П. Христакиева, ***М. Облакова***, Н. Минчева, И. Иванова, 2010. Морфологични качества на яйцата при кокошки с различен генотип. Животновъдни науки, 1, 50- 56.

РЕЗЮМЕ

Проучването е проведено през 2009 г. в племенната ферма на ХЦП при ЗИ- Ст. Загора. То е етап от създаване и усъвършенстване на линии кокошки в яйценосно и бройлерно направление. Като опитен материал бяха използвани пет яйценосни линии кокошки- Т, Б, В, Г и Д и три бройлерни- линия М, Л и К. Целта на изследването е да се направи сравнителна характеристика на морфологичните качества на яйцата на пет генотипа кокошки от яйценосно и три генотипа от бройлерно направление, което ще послужи при бъдещата работа за правилно насочване на селекцията.На 34 седмична възраст от всяка група бяха взети за изследване на морфологичните качества по 30 броя яйца. На всяко яйце се определиха 13 показателя. Най-висока маса на яйцата от яйценосно направление имат кокошките от линиите Т и Б- 61,58 g и 62.90 g, а от бройлерно- линия М (корниш)- 66.51 g при p< 0,001. Дебелината на черупката с подчерупковата ципа при кокошките от яйценосно направление е най- голяма при линиите, снасящи по- тежки яйца- линия Т и линия Б p<0,001- 0,392 mm и 0,387 mm, а при линиите от бройлерно направление се наблюдава обратна тенденция. С най-дебела черупка са яйцата на плимутрока линии Л и К -0.369 mm и 0.356 mm, съответно. Кокошките от проучваните линии в двете направления снасят яйца с добър индекс на жълтъка Най-високо качество на белтъка имат яйцата на линия Д от яйценосно направление и линия М - бройлерно направление. Показателите за индекс на белтъка при двете линии плимутрок не отговарят на оптималните изисквания и затова е необходимо селекционната работа да се насочи към подобряване качествата на белтъка.

26. Ралчева С., Н. Бозакова, В. Средкова, В. Герзилов, ***М. Облакова***, М. Лалев, 2010. Етологични аспекти на благополучието птици от вида Gallus domesticus при различни системи за отглеждане. Приложение 1: Животновъдни науки, 2010, 74- 79.

ABSTRACT

Experiment "on farm" with 2 groups- control and experimental (including 180 pigs DanBred hybrid in each group) was conducted in pig fanning complex "Brashlyan", Russe area for establishing the economy effect of reduced level of amino acid in pig nutrition. Duration of experiment was 80 days and started in a pigs Live weight (LW) average 32.2-33.8 kg and finished up to 102-103 kg. LW. Animals from the control group were fed with combined feed, well balanced concerning to digestible amino acids according to the norms of "DanBred", while the experimental group was fed with the same feeds but reduced with 10 %. Feed mixtures were produced in the feeding enterprise of the pig fanning complex and the composition was strictly controlled by CCS (computer controlling system). During the experiment live weight, feed intake, feed conversion ratio, health condition and mortality of animals were controlled and precisely measured .The result obtained from the experiment confirmed the standpoint that reducing the content of digestible amino acid in the ration of DanBred hybrid pigs with 10% is effective and the price of combined feed used in feeding was reduced with 21.6 BGN lv/t in grower and with 17.0 lv/t m finishing period. This had a positive effect on the reduced production costs of the obtained weight gain. Reduced level of digestible amino acids had not negative impact on the feed intake and the obtained weight gain. For the total experimental period the weight gain of the pigs fed with reduced 10% digestible amino acids ration had been 2.4% lower, but the specific

cost had been with 0.025 lv better. This way for each pig fattened (with 70 kg total weight gain) pure benefit 7.65 lv could be obtained.

27. Лалев М., ***М. Облакова***, Н. Минчева, П. Христакиева, И. Иванова, 2011. Възможности за използване на генофонда при създаване на нови изходни линии кокошки от бройлерно и яйценосно направление. Аграрни науки, III, 6, 119- 129.

ABSTRACT

Stock hybrids and breeding hens from world leading poultry companies are offered on the Bulgarian market. As a result of a greater concentration and more productive high performance we are facing the fact that very species are involved in the new hybrid scheme worldwide. Thus the loss of genetic resources carriers a certain risks for future selection activities. The significant impact of this activity on the poultry industry in Bulgaria request the preservation and improvement of the productive quality of the lines in order to improve the genetic qualities of the breeding hens. Ten baselines of hens are bred in the breeding facilities of the Department of Poultry at the Agricultural Institute in Stara Zagora- SZ-80B, SZ-80M, line B and D, line G, Ng, E, Ss, ChS and StR their productivity being controlled for the following traits: live weight on day 1, at 5 months and 10 months of age, reproductive performance, egg productivity, survival percentage for the period. A characterization of the hen base lines was made- part of the national gene pool-a result of many years of preservation and improvement. The creation of new lines in poultry farming is a process which aims at a maximum use of the genetic potential of laying and broiler breeds. The team aims to create, improve and maintain the three starting lines: line P, line T and line N of the laying stock by applying a particular breeding scheme. In the broiler direction three lines will be consolidated- line K, line L and line M, and will occupy the relevant part in the scheme for obtaining broiler chicken.

28. Лалев М., ***М. Облакова***, Н. Минчева, П. Христакиева, И. Иванова, 2011. Създаване на изходни линии кокошки от бройлерно направление. I. Основни продуктивни показатели на изходни линии кокошки- бройлерно направление. Аграрни науки, III, 6, 129- 135.

ABSTRACT

The study took place at the poultry Hybrid Center in the Agricultural Institute- Stara Zagora, during 2009- 2010. The following lines were studied: Line K, Line L, Line G of the White Plymoth Rock breed. In each line 20 flocks were formed with 10 hens, one main and one reserve rooster. The present study was carried out to identify and compare the productivity of broiler chickens constituting a part of the poultry population at the Hybrid Center in Stara Zagora. The live weight of young fowls from line K at 6 weeks of age was higher than that of the adolescent birds from the other two lines by 3% in females and 5.73% in males. The number of laid eggs with the hens from line K by the 44th week of age was the highest and exceeded that of line G and line L by 4.86% and 4.47% respectively. The fertility of the eggs and hatchability of chickens was higher in line L- 89.55% and 94.04% respectively.

29. ***Oblakova M.***, M. Lalev, T. Bakalivanova, P. Hristakieva, N. Mincheva, I. Ivanova, 2011. Effect of dietary probiotic supplementation of layer hens on morphological and functional traits of eggs, Union of Bulgarian scientist, Stara Zagora, International science conference 2- 3 june, 21- 27.

ABSTRACT

Two lines of stock layers were included: line K (layers with white feathers used for obtaining autosexing hybrids as maternal line) and line L (Plymouth hens, used as maternal form for broiler chickens production). Sixty hens were included in each of experimental (whose ration was supplemented with probiotic) and control groups (non-supplemented). They were reared in 5 boxes with 4 nests in each, at a ratio of 12 hens per rooster in a nest. Hens from line N received a standard compound feed according to their category. The diet of the experimental group was supplemented with 500 g probiotic/ton. The biologically active components of the bioproduct were: active microflora– Lactobacillus bulgaricus with total counts of 6.5Ч10, Streptococus thermophilus with total counts 3.4Ч10. The addition of probiotic to the birds' feed led to a significant change of Live mass in hens of the meat- type L line at p<0.001. The percentage of hatchability from the set and fertile eggs was higher in the birds that had consumed probiotic of the N line – 89.92% and 96.67% at p<0.01 and p<0.05. The same indices for the L line were also higher in the experimental group, yet they were not statistically significant (p≥0.05). From the results it could be concluded that the probiotic had no influence on the egg's size and morphological traits. The laying capacity in both groups of both lines did not differ significantly after the usage of probiotic. The addition of probiotic did not have a significant influence on the acidity of the egg content, as well as on the egg melange's ability to form emulsion, which is a very important functional trait.

30. Минчева Н., П. Хрискакиева, И. Иванова, М. Лалев, ***М. Облаков,*** 2011. Морфологични качества на яйцата при кокошки носачки от генофонда- Съюз на учените Стара Загора, Международна научна конференция 2- 3 юни, 59- 63.

ABSTRACT

The study was carried out in 2010 in the farm of Hybrid Poultry Center at the Agricultural Institute- Stara Zagora to indentify genetic features of the hens from the national gene pool of the main morphological characteristics of eggs. Were examined eggs by line Ss, line NG, line E, line ChS, line StR, line G, line D, line SZ80M, line SZ80B, line B at 34 week of age, 30 eggs from each line. For each egg were determinated: egg mass, shell weight, shape index, yolk index, albumen index, Haugh unit, yolk, albumen shell as a percent of egg weigth. The highest egg mass was found for the line G, SZ80M and SZ80B- 61.18 g, 60.27 g, 59.03 g. Lines with -high ratio of egg mass to the mass of the egg yolk arnt the largest egg mass-line ChS 34.47%, followed by the line is 32.70%, respectively. The index of protein in all lines is unreliable differences with the exception of line D- 12.3%. Between line D and E-7.88% has been demonstrated difference at p <0.001. Hough units vary more borders in the lines between them. The high quality protein is distinguished line D with a value of 89.61units Hough, followed by line E with 79.31 Hough units.

31. Lalev M., P. Hristakieva, ***M. Oblakova***, N. Mincheva, I. Ivanova, *2011.* Investigation of dietary probiotic effects on productive traits in broiler breeders. Archiva Zootechnica 14: 2, 57-65.

ABSTRACT

The experiment was performed with breeder hens of line K- White Plymouth rock, from the gene pool of the Poultry Hybrid Centre, used as maternal form for broiler production. Control hens

received a traditional compound feed, and the experimental group- compound feed supplemented with 500 g probiotic/tonne. The biologically active substances of the bioproduct were: active microflora- Lactobacillus delbrueckii subsp. bulgaricus with total counts of 6.5×105, Streptococus thermophilus with total counts 3.4×108, vitamins and amino acids. The aim of the study was to investigate the effect of this probiotic on productive and morphological traits of produced eggs. The egg mass in experimental group was 2955.56 g, due to the higher egg laying intensity. The lower feed conversion per egg resulted in lower feed conversion per kg egg mass- by 0.515 g in experimental group. It could be concluded that the dietary supplementation with the probiotic increased the survival of experimental hens. By the end of the experimental period, egg mass increased statistically significantly in breeders that received the supplement ($p<0.001$).

32. Hristakieva P., M. Lalev, ***M. Oblakova***, N. Mincheva, I. Ivanova, 2011. Effect of storage duration on the quality of hatching turkey eggs. Archiva Zootechnica 14:3, 57- 65.

ABSTRACT

The experiment was performed in 2011 in the breeder farm of the Hybrid Poultry Centre at the Institute of agriculture- Stara Zagora in order to determine the effect of the different preincubation storage periods on hatchability traits of turkey eggs and the changes in egg components. Eggs from light layer (LL) line of turkeys at the age of 38 weeks used as maternal side for turkey-broilers production were used. They were divided into the following groups: eggs stored for 14, 10, and 4 days as well as fresh eggs (without storage). The storage of eggs took place in an egg storehouse with constant air temperature and humidity (17°C and 72%). The loss of weight during the storage increased as the storage duration prolonged ($p<0.001$). During incubation, the highest weight loss percentage was exhibited by eggs stored for 10 days (14.29%) that was statistically significantly ($p<0.001$) different from weight loss of fresh eggs. which lost weight. The highest fertility (92.42%) was noted in fresh eggs. A very high early embryonic death rate was observed in eggs stored for 14 days (13.63%). The hatchability of fertile eggs was the highest in fresh eggs (90.77%) and the lowest in eggs stored for 14 days (71.45%) ($p<0.001$). The albumen percentage of total egg weight was the highest in fresh eggs (59.09%). The albumen pH increased with the storage duration and was the highest in eggs stored for 14 days (9.25). Albumen's height decreased as storage duration became longer. For incubation to be use turkeys eggs from LL line stored at least time at 72% humidity and 17°C, because hatchability decreases with increasing duration of storage.

33. Mincheva N., M. Lalev, ***M. Oblakova***, P. Hristakieva, I. Ivanova, 2012. Investigation on the frequency of alleles at the K locus and their effect on the growth of two lines of Plymoutrock chickens. Archiva Zootechnica, 15: 1, 69- 75.

ABSTRACT

The research was performed with the goal of establishing the frequency of alleles for fast or slow feathering at the K locus in two lines of White Plymouth Rock hens (maternal forms) – lines L and K, as well as their influence on the birds' live weight during growth. The rate of feathering was determined at one day of age according to the length of the primary and secondary wing feathers. The birds' weight development was controlled through individual weighing at 2, 4, 6, 8, 10, and 12 weeks of age. In male chickens of the L and K lines, a higher frequency of the slow-feathering allele was found, respectively, 0.676 and 0.503 against 0.203 and 0.306 in females. Male and female chickens of the L line with a rapid-feathering genotype had higher live body

weight than those with alternative genotype at ages of 2 to 12 weeks. There were no differences between the feathering genotypes for female chickens of the K line, whereas in males there was a tendency for higher live body weight with the rapid-feathering genotype. Slow- feathering chickens of both sexes of the same line were by 81.20 g (4.10%) lighter than rapid-feathering ones at the age of 12 weeks ($p<0.05$). The effect of slow- or rapid-feathering alleles was not identical for both sexes and the studied lines.

34. Lalev M., ***M. Oblakova***, P. Hristakieva, N. Mincheva, I. Ivanova, 2012. Development of new laying hen lines. I. Growth potential and egg production rate. Trakia Journal of Science, Vol. 10, 1: 43- 47.

ABSTRACT

The experiment was performed in the Poultry Breeding Unit at the Institute of Agriculture, StaraZagora, in 2009- 2010. Three different chicken genotypes obtained by a specific plan were used: line Rand line T from the Rhode Island Red breed and line N from the Rhode Island White breed. For each line, 20 selection nests with 12 hens and 2 cockerels (one principal and one spare) were formed. On the basis of observed zootechnological parameters, the line T was found to be superior to the other two lines with the highest live body weight of hens and cockerels and the lowest feed consumption per egg. Line N exhibited the highest hen-housed egg production rate, the intensity of egg laying, the age of egg laying's start and hatchability. The fertility or eggs produced from this line was higher than that of Line N by 7.94%, whereas the hatchability of fertile eggs was by 2.19% higher than that of Line P. The egg mass for Line P and Line T with 60.90 g and 60.24 g ($p< 0.01$) was superior to Line N.

35. Lalev M., ***M. Oblakova***, N. Mincheva, P. Hristakieva, I. Ivanova, 2012. Evaluation of productive traits of chicken lines from the national gene pool. Trakia Journal of Science, Vol.10, 1: 38- 42.

ABSTRACT

The issue of avian gene pool preservation should be linked to the development of a new trend in selection allowing rational use of the diversity of breeds and lines. Ten original chickens lines are reared in the Poultry Breeding Unit at the Institute of Agriculture, Stara Zagora: CZ-80 B, CZ-80 M, Line B, Line D, Line G, Line NG, Line E, Line Ss, Line ChS, Line StR controlling their productivity through reproductive traits, live body weight at the age of 1 day, 5 months and 10 months, egg production and survival rate for the production period. The reproductive traits of chickens from the gene pool are characterized with high egg fertility- from 96.56% for Line NG to 86.98% of Plymouth Rock Line G. Among the egg-type chicken lines, the highest hatchability rate from fertile eggs was observed in Line D - 89.05%. Chickens of all lines studied exhibited low death rates. The highest egg mass was that of chickens from Line G- 63.10 g and Line E- 61.73 g The highest egg production over the 180-day period was that of the egg-type Line B- 146 eggs, and Line CZ-80 B- 145.67.

36. Mincheva N., M. Lalev, ***M. Oblakova***, P. Hristakieva, I. Ivanova, 2012. Effect of feathering alleles (K/k+) on laying performance, hatchability parameters and some body measurements in two lines of white Plymouth rock hens. Biotecnologie in animal husbandry 28 (3): 405- 414.

ABSTRACT

The study aimed to investigate the effects of sex- linked feathering alleles on laying performance, hatchability parameters and body measurements in hens from two White Plymouth Rock lines (line L and line K) used as maternal lines in broiler production. Four groups of 18- week- old hens were formed, two of each line, with genotype K/W (slow feathering) and k+/W (rapid feathering) respectively. Groups of line L included 72 hens divided into 6 boxes with 1 rooster per 12 hens, whereas line K groups comprised 96 hens of each genotype, housed in 8 boxes with one rooster per 12 hens, totally 192 birds.The K locus alleles had no significant effect on egg production traits ($p>0.05$). The presence of slow feathering allele resulted in lower fertility and hatchability of set eggs in both studied lines ($p<0.05$). A substantial effect of feathering rate alleles was observed with respect to the egg shape index ($p<0.05$), eggshell thickness ($p<0.001$) and albumen index ($p<0.05$). The presence of the slow feathering allele resulted in lower live body weight of birds from line K at the age of 36 weeks ($p<0.05$), but in longer thighs ($p<0.01$) and metatarsi ($p<0.001$) in both lines. The selection for creation of slow feathering lines for feather sexing purposes should take into consideration the effect of the K gene on studied traits.

37. Popov B., Georgieva S, ***Oblakova M***, 2012. Genetic tests and genetic discrimination- review. Science & Technologies, Volume II, Number 1, Medicine, 268- 271.

ABSTRACT

This publication presents some aspects of the issues surrounding the introduction of diagnostic tests in medical genetics, which gives rise to moral and ethical and social problems related to the protection of medical confidentiality and the resulting genetic discrimination. An attempt was made to analyze the underlying causes that lead to genetic discrimination and factors that constrain it.

38. Georgieva S., B. Popov, G. Miloshev, G. Bonev, ***M. Oblakova***, 2012a. The protective potential of the *Haberelea rhodopensis* extract against the genotoxic effects and lipid peroxidation induced by cyclophosphamide in rabbits. Trakia Journal of Sciences, 10, 1, 246-252.

ABSTRACT

The aim of the present study was to investigate potential of Haberelea rhodopensis extract (HR) extract against the genotoxic effect and lipid peroxidation induced by cyclophosphamide (CP)in rabbits. From he performed comet assay it is clearly seen that CP induces damage in the DNA molecule. Such domage is detected and registered as a 48% increase of DNA in the comet tails. The HR extract also induces DNA breaks in the cells, but with a far lesser effect i.e. 27%. When the experimental animals are simultaneously treated with CP and HR extract, the effect of CP are fully eliminated. A firm verification for this is the fact that the comet size goes beyond the size of the comments in the group, treated solely with the HR extract though it never reaches the comet size in the control group. The results from determining the MDA levels show a considerable elevation of the parameter in the group treated with CP- at the 24 th hour the level of MDA is 6.23 ± 0.42 ($p<0.001$) and on the 8 th day- 5.72 ± 0.61 $p<0.001$ when compared with the control group 4.38 ± 0.8 .When the rabbits are treated an a combined manner HR +CP a tendency for a decrease in the registered levels of MDA is observed in the time interval 4 th hour- 8 th day. Significant difference in the level of MDA in the differently treated groups are registered in the 24 th hour following treatments. In this interval the level of MDA in the group treated with CP-

6.23± 0.42 authenticaly exceeds the level in the group treated with HR ±CP- 5.2±0.6 ($p<0.001$). The performed study show that the ER extract does possess antigenotoxic properties and also decreases the level of lipid peroxidation in rabbits trealed with the alkylating agent cyclophosphamide.

39. Sokolova K., V. Ivanov, S. Radev, Z. Tsokeva, V. Grigorov, ***M. Oblakova***, 2012. Radioprotective agents- trends in the development. Science & Technologies, Volume II, Number 1 Medicine: 261- 267.

ABSTRACT

This publication presents some aspects of the problems associated with the past, present and future strategies relating to the development of radioprotectors. The advantages and disadvantages in the application of these agents are discussed . The criteria of effectiveness of radioprotectors as their mechanisms of action are specified. Based on the relatively new studies connected with the development of radioprotective agents, the authors focus on the implementation of substances with moderate efficacy, low toxicity and easy way of introduction.

40. Popov B., S. Georgieva, ***M. Oblakova***, G. Bonev, 2013. Effects of *Haberlea rhodopensis* extract on antioxidation and lipid peroxidation in rabbits after exposure to ^{60}Co-γ-rays. Arch. Biol. Sci., Belgrade, 65 (1), 91- 97.

ABSTRACT

Haberlea rhodopensis extract (HRE) possesses strong antioxidant activity. The aim of the present study was to evaluate the protective ability of HRE against oxidative damage induced by a non-lethal dose of 60Co-γ-rays. Experimental animals (New Zealand rabbits) were exposed to 2.0 Gy γ-rays before and after HRE administration. Lipid peroxidation (MDA) and activities of antioxidant enzymes superoxide dismutase (SOD) and catalase (CAT) were analyzed. Results show that administration of HRE before and after irradiation decreased the MDA level and increased SOD and CAT activity, thus providing protection against the radiation-induced decrease in antioxidative ability and increase in lipid peroxidation. This finding supports the idea that HRE is a potent free radical scavenger and antioxidant.

41. Hristakieva P., N. Mincheva, ***M. Oblakova***, M. Lalev, I. Ivanova, 2014. Effect of genotype on production traits in broiler chickens. Slovak Journal of Animal Science, 47, (1):19- 24.

ABSTRACT

The experiment was carried out in the nucleus poultry farm of the Institute of Agriculture- Stara Zagora between April and June 2012. Two broiler chicken genotypes were studied: Ross 308 and Cobb 500. For this purpose, 300 eggs of each genotype were set for incubation for to compare the meat traits of most popular broiler chicken hybrids: Cobb 500 and Ross 308 reared at the nucleus poultry farm of the Institute of Agriculture- Stara Zagora. The fertility rate, embryonic death rate, weight loss between incubation days 0 and 18, and the hatchability of set and fertilised eggs were determined. The number of chickens included in the study was 100 from each genotype (50 male and 50 female). Experimental birds were reared on wooden shavings bedded floor, with constant access to compound feed according to the age until 49 days of age. The live body weight was determined individually by weighing birds at 1, 14, 28, 42 and 49 days of age. By the end of the experiment, a slaughter analysis of three female and three male broilers with a live weight close to the group average was performed. For integral assessment of broiler

combinations, the European Poultry efficiency factor (EPEF) was calculated. The results of present experiments showed a number of differences in meat and slaughter traits between studied broiler chicken hybrids. The weight of hatchlings differed significantly according to the genotype ($p<0.05$). One-day-old Cobb 500 broilers were heavier than Ross 308 broilers. At the end of the experiment, Cobb 500 broilers attained a higher live weight, and were heavier than Ross 308 birds by 6.29%. The feed intake per 1 kg weight gain over the entire experimental period was 2.178 kg and 2.181 kg for Ross 308 and Cobb 500, respectively. Higher values of the European poultry efficiency factor (EPEF) were established in Cobb 500 broilers, which were more economically efficient than Ross 308 by 14.87 points (6.18 %). The performed slaughter analysis showed higher values of slaughter traits in Cobb 500, which had higher growth potential: bratfertig weight 1810.67 g and grill weight 1710.50 g; whereas the respective values in Ross 308 chickens were 1547.67 g for grill and 1645 g for bratfertig. IN male Cobb 500 broiler chickens, the bratfertig percentage was 74.02%, by 1.41% more than that of Ross 308 males. The same trend were observed in female birds as well, i.e. superiority of Cobb 500 over Ross 308.

42. Hristakieva P., ***M. Oblakova***, M. Lalev, N. Mincheva, 2014. Heterosis effect in hybrid laying hens. Biotechnology in animal husbandry, 30 (2): 303- 311.

ABSTRACT

The new original egg laying lines T, P and N selected at the Institute of Agriculture- Stara Zagora were used. Hybrid T♂ × P♀, P♂ × T♀ crosses were obtained and used for paternal line. Thereafter, the following breeding schedule of paternal and maternal lines was applied: Group I - (P♂×T♀)♂ ×N♀; group II - (T♂×P♀)♂ ×N♀; group III- T♂×N♀; and group I - P♂×N♀. The production traits of original and hybrid birds were recorded: live weight at the age of 8 and 18 weeks, age of sexual maturity in days, 150 days egg production, average egg weight – at 2- week intervals until end of lay; livability, heterosis effect. The live weights of hybrids at 8 and 18 weeks of age were statistically significantly lower compared to original lines. The values of heterosis for this parameter were negative for all four hybrid combinations. The earliest beginning of egg lay occurred in (T♂×P♀)♂ ×N♀ (162.08 days of age) and P♂×N♀ (163.11 days of age). The relative (%) heterosis for age of sexual maturity of studied hybrid combinations had moderate to low negative values. Average egg weights of hybrids were higher and the values of heterosis– positive for all four groups varying from 0.97% to 1.63%. The average 150 days egg production was lower in purebred lines compared to hybrids. The highest average 150 days egg production was determined in P♂×N♀ hybrids- 142 eggs. The heterosis effect for egg production in hybrids was significant.

43. Lalev M., N. Mincheva, ***M. Oblakova,*** P. Hristakieva, I. Ivanova, 2014. Estimation of heterosis, direct and maternal additive effects from crossbreeding experiment involving two White Plymouth rock lines of chickens. Biotechnology in animal husbandry, 30, 1, p.103- 114.

ABSTRACT

Eight hundred one-day-old female chickens from two White Plymouth Rock lines (line L and line K) and heir reciprocal crosses obtained from 40 male and 480 females were used to form four genetic groups (LxL, KxK,LxK and KxL). The aim of this study was to investigate the differences among obtained genotypes, the direct and maternal additive effects and the heterosis with regard to the following traits: body weight from 2 to 10 weeks of age and at 18, 26 and 30 weeks of age, age at sexual maturity, egg production per hen-day until 46 weeks of age, average egg weight

(between 32 and 46 weeks of age), liveability during the production period, egg fertility, hatchability of set and fertile eggs. The additive genetic model of Dickerson using crossbreeding program was used to determine the crossbreeding effects. The results demonstrated a statistically significant effect of the genotype on body weight during the different age periods ($p<0.001$), age at sexual maturity ($p<0.001$), egg production ($p<0.01$) and livability ($p<0.05$). On the basis of analysis of direct additive effects, it could be concluded that line L was superior for obtaining combinations with more intensive growth rate. Although the lack of direct additive effect with respect to the other traits studied, there was a positive tendency favouring line K. Maternal additive effects had a substantial effect on body weight in most studied periods and livability, favouring line L. The heterosis was important for body weights at different periods of life (3.76-22.33 %), age at sexual maturity (-8.32 %) and egg production (8.25 %) with positive effects on these traits. The results pointed at a mutual complementary effect between both lines as a result of crossbreeding.

44. Иванова И., М. Лалев, В. Георгиева, Н. Минчева, ***М. Облакова***, П. Христакиева, 2014. Ефект от участието на три нива сух зърнен спиртоварен остатък от царевица като компонент на комбинираните фуражи за пилета бройлери върху продуктивните показатели. 24-th International Scientific Conference 5- 6 june, Stara Zagora, Bulgaria. Volume IV, Number 5. Science & Technologies, 44- 52.

ABSTRACT

The aim of the present study was to investigate the effect of three dietary levels of corn dried distillers grains with soluble (DDGS) on production traits in broiler chickens. The experiment was conducted with 200 male one-day-old Ross 308 broiler chickens, divided into 4 groups with 50 birds each. The experimental birds were reared on wooden shavings flooring up to 49 days of age, with constant /ad libitum/ access to compound feed according to the age periods. The live body weight was determined at 10, 28 and 49 days of age, and feed utilization –per each period on the basis of feed intake and resulting weight gain. The chickens from group I (control) were fed balanced compound feed as per the requirements of the hybrid, without corn DDGS. Chickens from experimental groups II, III and IV received compound feed with 10%, 15% and 20% DDGS, respectively. By the end of the trial, slaughter analysis was performed on four birds from each group with body weight equal to the group average after 12- hour fasting. The inclusion of 10% DDGS to the compound feed of broiler chickens, fattened until 49 days of age, did not exert a negative effect on growth performance of birds. The dietary corn DDGS levels of 15% and 20% resulted in statistically significant reduction of body weight by 7.21% and 7.95% vs non-supplemented controls, respectively. Over the entire fattening period, there was not a considerable difference in feed utilisation between control chickens and chickens fed 10% DDGS. The feed supplementation with 15% and 20% DDGS increased feed expenditure by 4.0- 4.8% vs controls. Feeding compound feed with 15% and 20% DDGS to broiler chickens resulted in statistically significantly lower bratfertig and grill weights. In all supplemented groups, breast weight was substantially reduced, while the thigh weight was unchanged. The results allowed recommending the inclusion of up to 10% corn dried distillers grains with soluble in the compound feed of broiler chickens throughout the 49- day fattening period.

45. Mincheva N., ***M. Oblakova***, P. Hristakieva, M.Lalev, I. Ivanova, 2014. Effect of sex- linked dwarf gene (dw) on exterior, production and reproduction traits of breeder hens used for

production of slow-growing colour- feathered chickens. Biotechnology in animal husbandry, 31, 2: 163- 174.

ABSTRACT

The effect of sex- linked dwarf gene was investigated through comparison of dwarf hens with their full- sib normal sisters obtained by mating heterozygous males (DW/dw) to normal females (DW/_) from line F (used as maternal form for production of slow- growing colored chickens) with respect to the following traits: body weight, shank and keel length at 40 weeks of age, age of sexual maturity (at 50 % production), egg production, egg weight, feed intake, feed utilization, livability, fertility, hatchability and egg quality characteristics. The results demonstrated that the dw gene caused statistically significant reduction of body weight by 29.15 %, shank length by 20.17 %, keel length by 7 % and egg weight by 5.72 % ($p<0.001$). The hens with normal genotype attained sexual maturity 7 days earlier ($p<0.001$), but nevertheless, rate of lay was similar to that of mini forms. There were no considerable differences between both genetic groups with respect to livability percentage over the production cycle. Dwarf hens consumed by 23.38 % less feed ($p<0.01$) than normal sized hens and converted nutrients more efficiently by 12.69 % ($p<0.05$). The presence of dw gene in hen genotype increased the eggshell percentage, reduced egg yolk and albumen weights and had no effect on their quality. The positive effect of the sex- linked dwarf gene on economically important traits- feed intake and feed conversion, hatchability of eggs set, is a prerequisite for the development of more efficient broiler breeder hens for production of slow- growing chickens.

46. Mincheva N., ***M. Oblakova,*** M. Lalev, P. Hristakieva, I. Ivanova, 2015. Investigation on production traits of broiler chicken hybrid combinations. Bulgarian Journal of Agricultural Science, V. 21, 1, p. 184- 189.

ABSTRACT

The experiment was carried out in the selection base of the Poultry farm, Institute of Agriculture- Stara Zagora between April and June 2012. Two broiler chicken genotype combinations were used: the first was the offspring of line M roosters with line K hens (M x K), and the second – of line M roosters with line L hens (M x L).For this purpose, 300 eggs of each combination were set for incubation. The fertility rate, embryonic death rate, weight loss between incubation days 0 and 18, and the hatchability of set and fertilised eggs were determined. The number of chickens included in the study was 100 from each genotype (50 male and 50 female). The sexing was done at one day of age. Experimental birds were reared on wooden shavings bedded floor, with constant access to compound feed according to the age until 49 days of age.The live body weight was determined individually by weighing birds at 1, 14, 28, 42 and 49 days of age. Feed conversion was calculated. By the end of the experiment, a slaughter analysis was performed of three female and three male broilers with a live weight close to the group average. The results on fertility rate and hatchability from eggs set and fertilised eggs in studied broiler combinations showed a tendency towards higher values for the M x L combination- 87,50 % and 94,45%,respectively. The live body weight of the two different studied broiler genotypes was almost the same by the end of the experiment in both male and female birds. Slaughter traits (relative values) were better in M x L hybrids as percentage from the bratfertig and the grill compared to male M x K birds. In females, higher relative values of boneless breast and thighs were established in M x K compared to M x L broilers. Therefore, both combinations carrying

the traits of meat type chicken lines from the Institute of Agriculture- Stara Zagora, are appropriate for efficient production of commercial broiler chickens.

47. Teneva, A., V. Gerzilov, M. Lalev, H. Lukanov, M. Mincheva, ***M. Oblakova***, P. Petrov, P. Hristakieva, I. Dimitrova, K. Periasamy, **2015**. Current status and phenotypic characteristics of Bulgarian poultry genetic resources. Animal Genetic Resources, 56, 19- 27. © Food and Agriculture Organization of the United Nations

ABSTRACT

Poultry biodiversity conservation is a great challenge for many countries. Within the last several years, the number of endangered local breeds has increased, leading to a considerable loss of genetic resources. A similar trend was observed among the poultry breeds, including chicken, local turkey and goose breeds/lines established in Bulgaria, part of which is definitely lost. Currently these breeds/lines are at risk and/or threatened with extinction. The information obtained by phenotypic characterization of these breeds is the first step for planning the management of poultry genetic resources through setting up improved selection schemes and conservation strategies. In this paper, we reviewed the current state of knowledge regarding the morphological and phenotypic diversity of local poultry breeds and some old productive poultry lines in Bulgaria.

48. ***Oblakova M.***, S. Ribarski, N. Oblakov, 2015. Study on slaughter analysis, physico- chemical characteristics and micromorphological features of North Caucasian bronze turkey meat. Science & Technologies Volume V, Number 5, Animal studies & Veterinary medicine 75- 82.

ABSTRACT

The present study aimed at compare the meat performance, physico- chemical properties of skeletal muscles in North Caucasian bronze turkeys. North Caucasian bronze (NCB) turkeys were reared using the adopted Technology in the breeding turkey farm at the Agricultural Institute- Stara Zagora, on deep permanent litter. The feeding was ad libitum, with compound feeds according to the age of birds. The study comprised 3 Male and 3 female North Caucasian bronze turkey poults at 16 weeks Of age. At slaughter, edible offal (liver, heart, spleen and gizzard) were removed after the feet, feathers and heads. The cleaned carcass without the neck and edible offal represented the dressed carcass (grill). After 24- hour cooling at 0-4 0C the carcasses were cut. Twelve slaughter parameters were determined after evisceration and weighing of internal organs: liver, spleen, proventriculus, heart, intestines (g). They served for calculation of the slaughter yield. The difference between slaughter yields between males and females: 76.48% and 74.19± 3.25% respectively, was insignificant ($p>0.05$). This tendency for superiority of males was preserved for all parts of the body. The chemical analysis showed higher con tent of fat and ash in breast muscles of female turkeys. There were no differences in the amount of protein and fat in thighs. Eicosatrienoic and arachidonic fatty acids were not found in the breast meat of male and female NCB turkeys. Breast meat of both genders had statistically significantly higher content of P, K, Mg. The thigh muscles of males and females had higher Zn ($p<0.01$) and Fe ($p<0.001$) content than white breast meat.

49. ***Oblakova M.***, 2015. Investigation on production traits of breeder hens from the national gene pool used for production of slow-growing broilers. Science & Technologies, Volume V, Number 5, Animal studies & Veterinary medicine, 83- 93.

ABSTRACT

The present study comprised the initial stage of the research aimed at development of protocols for production of slow– growing broiler chickens. It included investigation on the productive performance of breeder forms, maternal from the dual purpose type line NG (New Hampshire G), line E (Barred Plymouth Rock), line Ss (Sussex),line F(NG x Rod Rhode Island)and meat type breeders for production of conventional broilers from line L(White Plymouth Rock) and line M (Cornish)(as control group in future tests). Line M was used as sire line for production of slow-growing broilers. The experiment was conducted in the breeder farm of the Hybrid Poultry Centre at the Institute of Agriculture- Stara Zagora. The best growth performance are conventional broiler breeders from line M and line L (p< 0.001 during the entire production period). The live weight of chickens from lines F and at 18 and 36 weeks of age was substantially superior to the other two studied dual purpose lines. The analysis of results showed That the fertility of eggs from the different genotypes used in the experiment was high: line E- 95.68 %, line Ss- 94.89 % , and hatchability of set eggs was from 90.22% (line NG) to74% (line F). The heaviest chickens- 44.65g in line and 39.55g in line F hatched from the heaviest in cubation eggs (67.58g and 63.86g respectively). There were no statistically significant difference. In the age of beginning of lat between dual purpose "line F with 179.56 days and line Ss-182.18 days. Lines M and L were outlined with statistically significantly late beginning of lay at 222.36 and 203.41 days of age, respectively (p< 0.001). From the four studied maternal lines for Production of slow- growing broilers, the highest hen- day and hen- housed egg production was demonstrated in line F- 98.18 and 99.44 Eggs, followedby line Ss- 996.51 and 98.86 ,but differences were insignificant. Birds with high live weight and good egg laying performance are Appropriate for use as maternal dual purpose forms.

50. Klisarova D., T. Trayanov, M. Lalev, E.Petrova, G. Shtereva, S. Stoikov, D. Gerdhikov, ***M. Oblakova***, P. Hristakieva, I. Ivanova, 2015. Developing Innovative Mussel Farm and use of Mussel Shel Meal for Birds Food, Proseeding of the Twelht International Conference on the Mediterranian Coastal Environment MEDCOAST 2015, 6- 10 October, Varna, Bulgaria, 503-515.

ABSTRACT

Aquaculture is the only environmentally friendly method for production of mussels and preservation of mussel population. The first attempt to build underwater mussel farm was made by scientists from the Institute of Fish Resources in Varna (IFR) in 1971. The innovative mussel farm developed by the IFR team in 2010-2012 contributed to update and use the scientific capacity of our marine science in a new and more productive branch of mussel cultivation in the Black Sea. The growth of mussels and reaching of commercial size is directly dependent on their diet and that was the reason for investigation of the environmental conditions in the aquatory of the mussel farm in 2010 – 2012. Mussel shell meal from the farm was tested as food additive in broiler ration and it was found to be favorable in improving the growth indicators. The aim of the study was to establish the impact on productivity and morphological properties of eggs using mussel shell meal as a source of calcium in the diet of laying hens.

51. ***Oblakova M.G.***, L.K. Sotirov, M.T. Lalev, P. Hristakieva, N. Mincheva, I. Ivanova, N.A. Bozakova and Ts. Koynarski, 2015. Growth Performance and Natural Humoral Immune Status in Broiler Chickens Treated with the Immunomodulator Natstim®. International Journal of Current Microbiology and Applied Sciences, 4(11): 1- 7.

ABSTRACT

The effect of the immunomodulator Natstim ® (lyophilised killed bacterial cells from Escherichia coli 29, Escherichia coli J5, Staphylococus aureus 27/58 at amounts corresponding to 10 10 cells of each species, stabilized with Dextrane 40) on growth performance and two factors of natural humoral immunity serum lysozyme concentrations and the activity of the alternative pathway of complement activation (APCA) was investigated. The results for the experimental group showed a tendency towards higher live weight at 35 and 49 days of age. Experimental broilers had a higher productivity index than control broilers. The relative ratios of slaughter traits to grill weight showed better breast and thigh proportions in the treated group 34.5%, 30.1% vs.31.9%, 29.9% in the untreated group. Natstim ® had a significant effect on serum lysozyme concentrations (decreased almost 200%) but the activity of the alternative pathway of complement activation was not affected. These results indicate that the immune system was already activated and could effectively control infectious penetrating in the chickens body.

52. Ribarski S. ***Oblakova M.***, Miteva D., Oblakov N., 2015. Comparative study of carcass characteristics and chemical composition of meat in North Caucasian bronze and wild turkey (*Meleagris gallopavo silvestris Vieillot*). Science & Technologies, Volume V, Number 5, Animal studies & Veterinary medicine, 94- 99.

ABSTRACT

The aim of the present study was to compare slaughter traits and chemical composition of meat Between domesticated North Caucasian bronze turkeys (NCB) and wild turkeys (WT; Meleagris gallopavo silvestris Vieillot), reared in Bulgaria. The study was conducted in male and female birds from both breeds. North Caucasian bronze turkeys were reared in the breeding farm of the Agricultural Institute, Stara Zagora using the classical production system, and wild turkey- in aviaries in the hunting reserve in Trankovo. Both groups were fed ad libitum with compound feeds according to the age of birds. At 16 weeks of age, turkeys were fasted for 12 hours. The slaughter analysis determined the carcass weight before and after chilling, and the weight of visceral organs. The proportions of water, proteins, lipids and mineral substances in breast and thigh meat were evaluated. North Caucasian bronze turkeys had higher carcass weight and higher slaughter yield compared to wild turkeys. The proportion of edible offal (hear, liver and gizzard) from the chilled carcass in North Caucasian bronze turkeys was substantially lower than that in wild turkeys. A statistically significantly higher breast meat protein was established in male wild turkeys- 24.68% than in male NCB- 22.74% at $p<0.05$. Thigh meat in female wild turkeys (22.36%) had considerably higher protein content than Their female NCB mates (20.59% ;$p<0.001$). In the breast muscles is observed a high level of lipids in the female turkeys breed NCB- 2,87% with $p<0.001$ in comparison with that in the female wild turkeys of 0,91%. The breast and thigh meat of wild turkeys Contained more proteins and less lipids as respective meat types of NCB turkeys.

53. Lalev M., ***Oblakova M.***, L.K. Sotirov, P. Hristakieva, N. Mincheva, I. Ivanova, N.A. Bozakova and Ts. Koynarski, 2015. Effect of the immunomodulator Natstim® on innate humoral immunity and productive traits of White Plymouth Rock hens. Jokull Journal, vol.65, 12.

ABSTRACT

The effect of the immunomodulator Natstim® (lyophilised killed bacterial cells from Escherichia Coli 29, Escherichia coli J5, Staphylococcus aureus 27/58 at amounts corresponding to 1010 cells of each species, stabilized with Dextran 40) on serum lysozyme concentrations, the activity of the alternative pathway of complement activation (APCA) and growth performance in White Plymouth Rock hens was investigated. Natstim® was found to have a stimulating effect on innate humoral Immunity of hens and improved their productive performance. It was demonstrated that Natstim® should be better applied with drinking water and that its beneficial effects were superior if applied for a longer period of time.

54. Lalev M., ***M. Oblakova***, S. Ribarski, P. Hristakieva, N. Minncheva, I. Ivanova, 2016. Effect of Rumanol ML vegetable oil on productivity of broiler chickens. I. Growth performance. Trakia journal, №1, p. 67- 71.

ABSTRACT

The experiment was conducted between September and October 2014 in the Experimental Base of the Agriculture Institute- Stara Zagora with 150 male Ross 500 chickens divided into two groups: experimental and control. The sunflower oil in the ration of the experimental group was replaced by the feeding oil Rumanol ML. The latter was produced by the German company Rubelmann and includes five vegetable oils- coco, palm, shea, rape and sunflower at different proportions, with total linoleic value between 23- 25 %. The following parameters were determined: individual live weight- at hatching and at 10, 21, 35, 49 days of age. At the end of the trial, slaughter analysis of 3 male broiler chickens with body weight close to the group average was made, and after 12-hour fasting- 12 slaughter traits were determined. During all periods of growth and development, live body weight was statistically significantly higher in broilers whose diet was supplemented with Rumanol ML ($p < 0.001$). The addition of feeding oil Rumanol to poultry ration resulted in lower feed consumption per 1 kg weight gain by 6.8% and higher European Poultry efficiency factor than controls- by 18.16%. Absolute values of slaughter traits in 35-day-old broiler chickens were statistically significantly different ($p<0.01$). At 49 days of age, thigh and breast muscles, as well as grill weight of Rumanol- supplemented birds were by 20.7%, 15.5%, 11.41% respectively higher than controls,.

55. Ribarski S., ***Oblakova M.,*** 2016. Study on some slaughter and chemical analysis of meat from wild turkey (*Meleagris gallopavo silvestris Vieillot*) rearad in hunting reserve in south Bulgaria. Trakia Journal of Sciences, Vol. 14, 2, 135- 141.

ABSTRACT

A total of 6 wild turkeys Meleagris gallopavo silvestris Vieillot (3 males, 3 females) at 16 weeks of age were investigated after the species has been imported from Canada in the Hunting reserve of Trankovo, Stara Zagora region. The birds were reared in aviaries and occasionally, let free for hunting tourism. The birds were reared according to conditions adopted in the reserve, fed standard compound feeds according to their category. After12- hour feed with drawal, the birds were stunned and slaughtered. The slaughter analysis and meat chemical analysis were conducted at the Meat and meat products unit, Faculty of Agriculture, Trakia University- Stara

Zagora. After24- hour cooling storage at 0- 4°C the carcasses (without the neck and edible offal) were cut up in commercial parts. Twelve slaughter parameters were determined after evisceration and weighing of internal organs: liver, gizzard, proventriculus, heart, intestines (g). They were used for calculation of slaughter yield. Samples of breast and thigh muscles were Collected 24 hours after slaughter and prepared for determination of wate, proteins, fat and ash content. Fatty acid composition of triglycerides red and white meat was determined. Triglyceride quantity and quality were assayed by gas chromatography with metal column with Supelcoport 0/200 mesh as stationary phase. The amino acid content was determined by ion- exchange column chromatography. Water holding capacity (WHC, %) was determined on the 24 The post laughter on samples from m. Pectoralis superficialis, m. Pectoralis profundus and m. Femorotibialis. The slaughter analysis showed higher body weight and higher carcass weight in Male birds, although the slaughter yield of female was higher than that in males turkeys 67.13% and 66.87% respectively (p>0.05). The differences in protein and fat content of breast and thigh meat in both turkey genders were not significant. The content of the essential amino acid methionine in the breast meat of wild turkeys was 2.61g in males and 2.50 g in females. Lysine concentrations ranged between 9.58% and 9.69%. The eicosatrienoic omega- 3 fatty acids wasfound only in the meat of male turkeys. Breast meat of female birds did not contain eicosatrienoic and arachidonic fatty acids. There were no differences in the content of macrominerals and trace elements in the meat of both genders wild turkeys.

56. ***Oblakova M.***, S. Ribarski, P. Hristakieva, N. Oblakov, 2016. Chemical Composition and Quality Characteristics of turkey- broiler meat. Trakia Journal of Sciences, Vol. 14, No 2, 142-147.

ABSTRACT

*The present study was performed in the Turkey Breeding Farm of the Agricultural Institute, Stara Zagora. The experimental birds were crosses of Turkey Layer Light (LL) at 36weeks of age, used as maternal line, artificially inseminated with semen from Meat Heavy (MH) turkey gobblers. Turkey poults were reared up to 20 weeks of age using a traditional fattening production system. The birds were fed ad libitum with compound feeds according to their category and age. At 20 weeks of age, birds were slaughtered, and samples from breast muscles: m Pectoralissuperficialis m. Pectoralis profundus and from the thigh muscles (m. Femorotibialis) were obtained. The chemical composition of turkey meat was analyzed- water, proteins, fat, mineral substances and dry matter. Also, meat pH, water holding capacity (WHC %) and the colour of the three studied muscles were investigated. Meat pH was determined by the 24th post mortem hour. Then carcasses were cooled and stored in a refrigerator at 4oC. WHC of meat and muscle colour were determined by the 24th post mortem hour. There were no statistically significant differences between the contents of main chemical substances of meat between the genders. Breast meat had a relatively higher protein and lower fat content than thigh meat. Statistically significant (P<0.05) is the content of protein in the females breast muscles 23.0% relatively 20.73% of the female thigh muscles. Low degree of reliability (P<0.05) is characterized the contents in males thigh muscles to the males breast muscles males. Breast meat in both genders had lower meat pH24 values compared to thigh meat. The values of the L*coordinate of breast meat were relatively lower than criteria for PSE turkey meat in both genders (L*≥ 50).*

57. Videv E., J. Krastanov, S. Laleva, N. Oblakov, T. Angelova, D. Yordanova, G. Kalaidjiev, ***M. Oblakova***, 2017. Influence of some factors on in vitro gas production of different feed groups and possibilities for its prediction. International Journal of Current Research in Bioscience and Plant Biology, 4 (4), 39- 45.

ABSTRACT

Survey for establishing of correlation among in vitro gas production in the rumen of ruminants fed different groups of forage plants was performed at the Agricultural Institute, Stara Zagora. Gas production at 24 hrs and 48 hrs, content of NDF, ADF, DDM, DMI and RF were determined by ANCOM technology. On the base of correlations among the gas production and feeds parameters, regression equations were developed for approximate prediction the amount of in vitro gas production at 24and 48 hrs. The amount of in vitro gas can be predicted by NDF, DDM and RFV as an independent variables by Multiple regression with a good accuracy- R= 0.872- 0.890. Factor analysis demonstrated that in vitro gas production was mainly influenced by the type of forage- 49.86% depending on the composition of the group. Treatment of combined feeds and complete feed mixtures with bioadditives, Rumaniol, Biolife and Biobor have positive effect– 23- 49% in reducing gas production. Structural fibre components NDF and ADF have negative effect on the DDM, DMI and RFV and their increase in animal rations decreased the gas production.

58. Hristakieva P., ***M. Oblakova,*** N. Mincheva, M. Lalev, Kaliasheva K., 2017. Evaluation of some eggshell parameters during the embryogenesis in turkeys. Slovac Journal of Animal Science, 1, 1- 6.

ABSTRACT

The aim of the experiment was to investigate the traits of eggshells of incubated turkey eggs, produced by turkeys at 34 and 46 weeks of age and to evaluate their effect on the development of embryos. This study was performed in the turkey farm of the Poultry and Rabbit Selection, Population Genetics and Technology unit at the Agricultural Institute- Stara Zagora in 206. The eggs from turkeys of the North- Caucasian Bronze (NCB) breed were investigated. One hundred and twenty eggs were randomly collected from 34 and 46-week-old turkeys. The eggs were examined by the 9^{th} day of incubation and before the transfer to the hatcher. The numbers of dead embryos and their eggshell parameters were registered. The shells of eggs of viable hatchlings were also analysed. Egg weight, shell weight, shell thickness (at sharp end, blunt end and equator), number of pores, egg surface area and shell density of eggs with embryos dead and hatched from 34 and 46-week-old turkeys were investigated. At 34 and 46 weeks of age, the weight of eggshells of eggs with early dead and late dead embryos was significantly higher (8.35 g at $p< 0.001$ and 8.14 g at $p< 0.01$) compared to the eggshell weight of hatched eggs- 7.27 g. There were no differences in the thickness of shells of dead and hatched eggs, laid by 34- and 46- week- old turkeys. The total number of pores on the shell surface of early dead eggs was lower when compared to the parameter of late dead eggs and hatched eggs from turkeys at 34 and 46 weeks of age. Eggs with dead embryos had thicker shells than hatched eggs in turkeys at the two studied ages (34 and 46 weeks of age). This requires further studies on the influence of the quality of the egg shell on the development of embryos.

59. Kaliasheva K., ***M. Oblakova,*** P. Hristakieva, N. Mincheva, M. Lalev, 2017. Comparative study on morphological qualities of eggs from new auto sexing layer hybrids for free range poultry farming system. Bulgarian journal of agricultural science, 4.

ABSTRACT

The aim of this study was to evaluate five genotypes autosexing layer hybrids by feathering colour, obtained from the rich gene pool of layer hens, adapted to raising in free range poultry farming system. One of the related tasks was to establish the influence of the genotype on morphological quality of eggs in the five hybrid groups as an element of evaluating their egg production performance. Experiments were performed at the Agricultural Institute- Stara Zagora in 2015. Eggs were collected from five genotypes autosexing hybrid hen strains (by feathering colour). Hybrids crosses were obtained from the following lines of the national gene pool- line Ss (Sussex- Columbian feathering), line NHG (German New Hampshire- red feathering), line P (Rhode Island Red, red feathering), line E (Barred Plymouth Rock), line I (Barnevelder). For the purpose of investigation morphological traits of eggs, 30 eggs were obtained from 34- week- old layers from each of the five groups. The eggs produced by hybrids from group V were the heaviest- 62.47 g with Barred Plymouth Rock as maternal form, whereas eggs of group IV (line Ss: Sussex as maternal form) were the lightest- 53.50 g at $p<0.001$. The eggs of the other hybrid groups were at the intermediate level. The weight of the shell with shell membranes had a highest significant value in heaviest eggs- those of hybrids groups I, V, II (6.14g, 6.13g and 6.01g respectively). The egg weight correlated to the shell percentage. The differences were significant at various levels of significance ($p < 0.05$). The absolute yolk weight did not tend to increase in eggs with higher weight. The trait varied at a various extent among the hybrids groups. The yolk index was not associated to egg weight and yolk weight. The groups with highest egg weight to yolk weight ratio were not the heaviest ones. The eggs of studied hybrids with the highest egg weight had more albumen. In group II, its amount was 36.54 g, group V- 35.83 g, group I- 35.12 g with highly statistically significant differences between groups III and IV.

60. Videv E., J. Krastanov, S. Laleva, T. Angelova ***M. Oblakova,*** N. Oblakov, D. Yordanova, V. Karabashev, 2017. In vitro gas production of different feeds and feed ingredients. Agriculture science and technology, 9, 2, 106- 109.

ABSTRACT

Investigation for determining the amount of in vitro gas production after feeding different groups of forages was performed at the Agricultural Institute- ®Stara Zagora. Forages from different regions were collected and analyzed for in vitro gas production at 24 h and 48 h by Ankom Technology. The following parameters of the tested forages were determinated: Neutral detergent fibre (NDF,%), Acid detergent fibre (ADF, %),Digestibility of dry matter (DDM, %), Dry matter intake (DMI, %)and Relative Feed Value (RFV, %). RFV was calculated on the base of DDM and DMI in comparison with alfalfa biomass in flowering stage. Collected feeds (46 samples) were divided in 11 groups on the base of their composition and structure- fibre component content. Depending on the amount of gas production forages can be divided in 3 groups: 1) Grain feeds generating the highest amount of gas - average 387.93 ml/g DM; 2) Combined feeds, fresh forages, complete feed mixtures- average 213.87- 245.15 ml/g DM 3) Hay, silage, straw, complete feed mixtures+ bioadditives- average 115.06- 208.34 ml/g DM. Intensity of gas production in grain feeds was higher at 24 h, while on the opposite, was higher at 48 h in roughage feeds due to the different speed of degradation of feeds- concentrated had a very intensive and quick degradation, roughages - slow degradation. Supplementation of combined

feeds with bioadditives Rumanol, Biolife, Bibor decreased the amount of gas production by 9.87%- 29.05%.

61. Hristakieva P., ***M. Oblakova,*** N. Mincheva, M. Lalev, Kaliasheva K, 2017. Phenotypic correlation between the egg weight, shell thickness, weight loss and hatchling weight of turkeys, Slovac Journal of Animal Science, 2017, 2, 90- 94.

ABSTRACT

Eggs of turkey layers from the North Caucasian bronze (NCB) breed were investigated. Incubation eggs were monitored on days 9 and 15 to establish embryonic mortality rates. By the 25th day of incubation, before moving the eggs in the incubator, they were weighed to determined the weight loss until this moment. Thirty eggs from which normal turkey poults have hatched, were randomly selected. The weight and thickness of egg shells, were determined, the hatchlings were weighed and their relative weight from the egg was calculated. A moderate positive correlation was established between the weight of incubated hatched eggs of turkeys at 34 and 46 weeks of age and eggshells weight (r=0.51 and r=0.50, respectively). Eggshells thickness was proportional to the whole egg weight- heavier eggs had thicker shells (r=0.34; p<0.05). A substantial positive effect of egg weight on the hatchling weight was established (r=0.77; r=0.65 at p< 0.001). The observed correlations between the shape of eggs and turkey egg weight, shell weight, shell thickness of hatched eggs, weight loss during incubation, were low and negative. A positive correlation (r=0.52) was demonstrated between the weight and thickness of eggshells in eggs produced by 34-week-old and from 46-week-old turkeys (r=0.68; p<0.001). A negative correlation (to r= -0.80) existed between weight loss during incubation and the absolute and relative weight of the hatchling.

62. ***Oblakova M.G.***, 2017. Effect of genotype on productive qualities of slow- groing and fast groing ckikens, Bulgarian journal of animal husbandry.

ABSTRACT

Five genotypes- four slow and one fast- growing, obtained by the following scheme are object of this study: ♂ M x ♀ Ss, ♂ M x ♀ E, ♂ M x ♀ NG, ♂M x ♀ F,♂ M x ♀ L. Chickcnes were reared under uniform conditions indoor, in groups, on deep paermanent wooden shavings litter (indoor-floor system) following the technology used in the selection base of the IA- Stara Zagora. Live weight was measured by individual weighing at 1, 14, 28, 42, 56, 70, an 84 days of age. The hatchability from fertilised eggs was affected by genotype in this study. The highest number of chickens hatched from group II (M x E)- 95.69%, followed by group IV (M x F)- 93.46%, and group V (M x L)- 91.73%. Up to the 56th day of the experiment, group V (M x L) had the best-expressed growth capabilities- 1770 g (p<0.05), followed by groups IV (M X F) and II (M x E) with respective weights of 1466.13 g and 1440.31 g. At 70 days of age, group V (M x L) was significantly superior to other groups in males as well as females (p<0.05), reaching, respectively, 3364.62 g and 2537.65 g, followed by groups IV (M X F) and II (M x E) with 2672 g, 2228 g and 2620 g, 2220.75 g. At the end of the experiment, the fast-growing chickens of group V (M X L) reached the highest live weight- 3822.63 g, followed by group IV (M X F) with 3352.57 g and group II (M X E) with 3280.50 g, respectively. There was a significant influence of genotype (p<0.001), sex (p<0.001) and their interaction (p<0.05) with regard to the changes in live weight throughout the period 70- 84 day. The chickens of group V (M x L) were outlined with the highest index of economic efficiency, 212.67%, followed by groups IV (M x F) and II (M x E)

with EPEF values of 184.21% and 175.80%, respectively.

63. ***Oblakova M.G.,*** N. Mincheva P. Hristakieva, I. Ivanova, M. Lalev, 2017. Carcass traits and meat quality of different genotypes slow-groing and fast-groing chickens, Scientific conference with international participation, Trakia University, Faculty of Agriculture, 25- 26, May, Agricultural Science and Technology (AST) под печат

ABSTRACT

Six lines from the National Gene Pool (Bulgaria) were used: line NG (New Hampshire G), line E (Barred Plymouth Rock), line Ss (Sussex), line F (NG x Red Rhode Island) were used as maternal forms in the crossing schedule. The breeders for production of conventional broilers from line L (White Plymouth Rock) and line M (Cornish) were from the meat type, and the latter was used as sire line for production of slow- growing broilers. The effect of genotype on meat quality traits was studied with 5 groups of 150 unsexed day- old chicks from each genotype, marked and vaccinated against Marek's disease and coccidiosis, and after the manifestation of sexual dimorphism- male and female chickens at 70 and 84 days of age. The birds had ad libitum access to compound feed according to the age category and water. By the end of the experiment, slaughter analysis was performed with 3 female and 3 male broiler chickens per group with live weight corresponding to the group average of each genotype after 12- hour fasting.

The results demonstrated that unlike the sex, which had a considerable effect on all studied slaughter traits, relevant effect of genotype was observed for all traits except for grill and bratfertig weights and abdominal fat weight. The interaction between genotype and sex was important for the slaughter weight ($p<0.001$), absolute and relative weights of the bratfertig and the grill ($p<0.05$), the thigh weight ($p<0.001$) and thigh percentage from the grill ($p<0.05$). The live body weights of birds at slaughtering indicated the highest values for group V- 4040 g, followed by groups IV and II- 3271.67 g and 3186.67 g respectively ($p<0.05$). There was a statistically significant difference between the sexes with superiority of male birds ($p<0.001$). The relationships of slaughter traits and live weight were various. The differences among live weights of the genotypes as well as between male and female chickens reflected on the ratfertig and grill weights, which exhibited the same tendency. Slow-growing chicken genotypes had a lower share of breast muscles along with higher proportion of the thighs. The relative proportion of breast meat was the highest in groups IV and V (21.97 % and 23.76 %, respectively). In the other 3 groups, breast meat percentage ranged from 19.48 to 19.84 %. The sex demonstrated statistically significantly lower weights of breast ($p<0.05$) and thighs ($p<0.001$) in female chickens vs males. The analysis of the effect of genotype on meat protein content showed that protein content was the highest in the breast of slow-growing chickens from group III- 24.89 % and lowest in the breast meat of conventional broilers from group V- 23.86 % ($p<0.05$). The sex also influenced substantially this parameter, which had higher numerical values in male birds on the account of fat ($p<0.001$). The interaction genotype × sex was important, and the highest breast protein was determined in slow-growing male chickens from groups I and III: 25.01 % and 25.04 %, respectively ($p<0.001$). The protein content of thighs was the lowest in slow-growing birds from group I- 19.49 %, and the difference was the highest when compared to groups II and III, also slow-growing ($p<0.05$). With respect to the thigh fat content, it was the highest in slow- growing chickens from group IV (5.84 %), followed by fast- growing from group V (5.33 %) and the lowest- in slow- growing birds from group I- 4.12 % ($p<0.05$).

64. ***Oblakova M.G.***, Y. Popova, M. Lalev, P. Hristakieva N. Mincheva, S. Georgieva, 2017. Научна конференция с международно участие Economic analyses of fattening on different

genotypes slow- groing and fast- groing chickens, Scientific conference with international participation, Trakia University, Faculty of Agriculture, 25- 26, May, Agricultural Science and Technology (AST) под печат

ABSTRACT

*Six lines from the National Gene Pool (Bulgaria) were used: line NG (New Hampshire G), line E (Barred Plymouth Rock), line Ss (Sussex), line F (NG x Red Rhode Island) were used as maternal forms in the crossing schedule. The breeders for production of conventional broilers from line L (White Plymouth Rock) and line M (Cornish) were from the meat type, and the latter was used as sire line for production of slow-growing broilers. The effect of genotype on meat quality traits was studied with 5 groups of 150 unsexed day- old chicks from each genotype, and after the manifestation of sexual dimorphism- male and female chickens at 70 and 84 days of age. In valuation on revenues and costs of the fattening of the compared groups, the current prices were used at the time on the experiment. Cost of feed is determined according to the actual feed. In determining the economic efficiency of fattening, three variants of sales prices per kg of meat - 3.60 BGN/kg, 4.65 BGN/kg and 5.30 BGN/ kg have been analysed. The rate of profitability is a synthetic indicator for economic efficiency, calculated by the formula: NP= Profitability / Production costs * 100, %.Feed expenses for experimental group I were lowered by 22.8%, while in groups II, III, and IV- respectively by 13.48%, 9.42% and 9.05%, compared to group V, which registered the highest consumption of feed in the amount of 5.52 BGN. The share of feed expenses in group I was 53.45% of total expenses, and in groups II, III, and IV group they were, respectively, 59.88%, 56.30%, 57.50%, and 56.87%. The highest profits per the accepted sale prices were observed in group V- 10.71 BGN, 13.68 BGN and 15.52 BGN respectively, followed by group IV with respectively 8.56 BGN, 10.92 BGN, and 12.38 BGN. At a level of sale prices of 3.60 BGN/kg a positive value of profitability was registered for the fattening of chickens from group V- 16.03%. In all other groups, the profitability norm was negative. At a level of sale prices of 4.65 BGN/kg, the highest profitability was observed in the chickens of group V- 48.21%, followed by group IV- 25.37%, while the lowest cost- efficiency was in the group III- 4.24%. In the variant with a sale price of 5.30 BGN/kg, the profitability norm was the highest in group V- 68.14%, followed by group IV- 42.13% and group II- 40.98%, while the lowest level was in group III- 18.21%.*

Изготвил:.....
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