N E W S
OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
SERIES OF AGRICULTURAL SCIENCES
ISSN 2224-526X
Volume 4, Number 28 (2015), 5 – 8

UDC 636.5.08.003

PERFORMANCE OF SOME PRODUCTIVE TRAITS OF BROILER CHICKENS AS AFFECTED BY DIFFERENT STOCKING DENSITIES IN CLOSED HOUSES

Sh. Alpeisov, A. Tanatarov, Zh. Kusainova

Kazakh national agrarian university, Almaty, Kazakhstan

Keywords: closed house, broiler chickens, body weight, hematological parameters, density of plant.

Abstract. The present study was conducted at "AlatauKus" farm in Kazakhstan on broiler cross "Ross 308" up to 42 days of age. Three different densities of planting 19/m^2, 21/m^2 and 23/m^2 were used. Body weights at different ages, livability percentages, carcass traits and chemical analysis of blood were estimated. The result has shown that the density of 21/m^{2}for closed system was more efficient than other densities.

Introduction. The purpose of broiler production is to obtain the maximum yield per unit area of poultry houses and labor at minimal cost. W. Bessei [3] illustrated that stocking density is a key issue for the economic results of broilers production. He alsoobserved that stocking density was ranged from less than 10 to over 80 kg/m^{2}floor space. L.D. Andrews [2] reported the highest stocking rates of more than 80 kg/m^2 in caged broilers. B. Algers and J. Svedberg [1] suggested that when stocking densities were from 10 to 35 kg/m^2 the incidence of dermatitis, leg problems and soiled plumage varied with humidity of the litter and ammonia concentration. Many investigators obtained that, in a large scale experiment with commercial farms using different strains, management systems and stocking densities, it was confirmed that the management condition such as litter quality, temperature, humidity and ammonia were more important than stocking density (M. Grashorn, [7] and M. Dawkins et al.) [4]. Therefore the present study was aimed to estimate changes in productivity of broilers chickens according to different stockings densities with estimating environmental conditions.

Materials and methods

The present experiment was conducted at "AlatauKus" farm in Kazakhstan on broiler cross "Ross 308" up to 42 days of age during 2014. Three groups of broiler chickens with different densities of planting were used.

The number of tested chicks per each group were 23240, 23280 and 23310 chicks for the first, second and third group, respectively. The birds of each group were housed in separated house, thus, the effect of density on the environmental conditions within the house could be estimated. Birds in all houses were fed two diets: the first one wasfrom 1 –28 days of age, and the second one wasfrom 29 –42 days of age and birds were fed adlib.

The studied traits were body weight at different ages till slaughters age (42 days), heat tolerance traits (body temperature, respiration rate, pulse rate), livability rates at different ages and carcass traits from 100 birds from each house (dressing percentage, edible bone leans carcass percentages). Also feed

conversion (feed/g gain) for each house was calculated. Environmental conditions in each house (under the corresponding density) were recorded in order to determine the effect of birds density on moisture and ammonia concentration. Chemical blood analysis was estimated to obtain red and white blood cells and hemoglobin ratio. Data were statistically analyzed by using SPSS program.

Results and discussion

Clinical indicators of broiler body temperature (under the wings), heart and respiratory rate were determined which supported healthy birds. Changing these indicators may be reflectedat different technological stress, climate and other environmental conditions. It is clear that there are no significant differences between groups or (densities) and these values were in agreement with thoseobtained by M. Soltan [12] and S. Mahgoub [9].

It is clear that birds under density of 21 birds/m^2 have the highest body weights 1264.4, 1797.8 and 2216.0 g at 28, 35 and 42 days of age. The lowest body weights was noticed for 23 bird/m^2 where it were 1239.7, 1749.6 and 1890.0 g at 28, 35 and 42 days of age. These average were in agree with those obtained by M. Soltan [12], El Homidan[5], and El Neny [6]. The study showed that the effect of planting density on the average performance of live weight of broiler chickens began to affect only at the age of 21 days. Similar finding was noticed by Meltzer [10] and he found that 10/m^2 density has highest body weight at the end of experiment.

One of the most important traits in the broiler production is the live ability percentage.Our study-revealed that the best results were obtained for livability percentage in group 1, however no significant differences were noticed. In general mortality rate were ranged from 10.7 to 11.4 for the first group (19 birds/m^2) and group 3 (23 birds/m^2) during 42 days of age these may be due to high mortality in the period of 36 –42 days of age (about 4 %) (table 1). Data showed that stock density of 21 birds/m^2has higher and significant dressing percentage (75.5) than birds under stock density of 19/m^2 and it was fast equal to birds under (23/m^2). These results were agree with those obtained by El Homidan [5] and El Neny [6]. However, the number of red blood cells in group 2 and 3 were higher than in group 1 and this can affect the quality of carcass. The hemoglobin content in group 2 was 2% higher than ingroup 1, but both were less than birds in group 3. Birds in group 2 havehigher white blood cells than birds in group 2 (0.02) and in group 3(0.40).

Average livability of broiler chickens at different ages

Component	Diet 1 from 1 –28 days of age, kg	Diet 2 from 29 –42 days of age, kg
Corn	35	40
Grain	20	22
Barley	12	12.6
Sun flower	16	11
Fodder yeast	3	3
Fish meal	1	1
Meat meal	7	5
Grass meal	3	3
Bonemeal	1	0.7
Shell	1.5	1.2
Premix	0.5	0.5
Total	100	100
Grude protein, %	21	19
ME Kcal / Kg	2820	2920
Calcium, %	1.2	1.4
Phosphorus, %	0.7	0.7
Sodum, %	0.4	0.4

The hematological parameters of blood of broiler chickens under different stocking densities at 42 days of age showed no significant differences between all stocking densities for white and red blood cells counts or hemoglobin concentration. Similar finding was noticed by El Homidan [5] and El Neny [6] in broilers.

For costumer the weight of edible parts of whole carcass is important. Therefore birds with 21/m^2 density have a good performance where weight oftheedible parts of whole carcass was 1449.2 g or 65.4 % from the live weight. Then birds with low density 19/m^2 have 1286.4 g as weight of edible parts of carcass and it is presented 64 % from the live weight. Another important indicator is the weight of bone leans meat. The same trend was noticed where birds under the density of 19/m^2 or 21/m^2 have higher muscles weight than birds under (23/m^2) density.

Two categories of estimation according to Kazakhstan standards were taken.

In category 1 the muscles of carcasses were well developed. There were deposits of hypodermic fat on the chest and abdomen. The keel breast bone did not pick out on the carcasses and it was not abnormal.

In category 2 carcasses hada small deposits of hypodermic fat on the chest and abdomen. The muscles of carcasses were developed satisfactorily.

All of these trends suggested that producers must use one of the two densities 19/m^2 or 21/m^2 under closed system or houses.

Conclusion. In closed house system under Kazakhstan's conditions, the efficient densities were 21 / m^2 then 19 / m^2. Carcasses from these densities have higher percentages of a good carcass under category 1 and these findingslead to high price of such carcasses with a high quality.

REFERENCES

[1] Algers B. and Svedberg, J.Effects of atmospheric ammonia and litter status on broiler health. Proceedings 3rd European Symposium Poultry Welfare, Tours, France, 1989. 11-14 June: P. 237-241.

[2] Andrews L.D. Cage rearing of broilers. *Poultry Science,* 1972. Vol. 51. P. 1194 –1197.

[3] Bessei W. Welfare of broilers: a review. World's Poultry Sci. Jr., 2006. Vol. 62. P. 455 –466.

[4] Dawkins M.S., Donelly S. and Jones T.A. Chicken welfare is influenced more by housing conditions than by stocking density.*Nature, 2004.Vol.*427.P. 342-344.

[5] El Homidan A. H.Effect of light regimes and feed frequency on performance of two commercial broiler strains. Ph.D. Thesis college of Agric. King Saudi Univ., Saudi Arabia,1994.

[6] El Neny B.A.Effect of light regimes and feed frequencies on broiler performance under Egyptian conditions. Ph.D. Thesis, Depart. of Poultry Sci., Faculty of Agric., Minufiya Uni., Egypt,2003.

[7] Grashorn M. Unter suchun genzurdialogue und pathogeneses des plutzlichenherztods beimasthahnern honen-heimerarbaiten. Stuttgart,1993.

[8] Grashorn M. and Kutritz B. Einfluss der besatzdichte auf die lei stungmodernbroilerherkunfte. *Archive fur Geflugelkunde,1991.*55.P. 84-90.

[9] Mahgoub S. Study of some environmental factors affecting performance in chickens. MS.c. Thesis, Depart. of Poultry Sci., Faculty of Agric., Minofiya Univ., Egypt,2000.

[10] Meltzer A. Dense brooding and rearing of broilers. 6 European Poultry Conf., Hamburg, 1980.Vol. 4. P. 8-16.

[11] Shanawany M.M. Broiler performance under high stocking densities. Brit. Poult. Sci., 1988. 29.P.43 –52.

[12] Soltan M.Effect of light regime Genotype interaction on body weight, growth rates at different ages in broiler chickens. Minofiya J. Agric. Res., 1992.Vol. 17: P. 527 –536.

ЖАБЫҚ ЖАЙЛАРДА ӘРТҮРЛІ ОТЫРҒЫЗУ ТЫҒЫЗДЫҒЫНА БАЙЛАНЫСТЫ БРОЙЛЕР-БАЛАПАНДАРДЫҢ ӨНІМДІЛІГІНІҢ ӨЗГЕРУІ.

Ш. Әлпейісов, А. Танатаров, Ж.Кусаинова

Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан

Тірек сөздер: жабық бөлме, бройлер-балапандар, дене салмағы, гематологиялық параметрлер, отырғызу тығыздығы.

Аннотация. Зерттеулер «Алатау Құс» фабрикасында бір тәуліктен 42 күндік жасқа дейінгі «Росс 308» кросты бройлер-балапандарға жүргізілді. Әртүрлі отырғызу тығыздығының (құсхана еденінің ауданы бойынша 19 бас/$м^2$, 21 бас/$м^2$ және 23 бас/$м^2$) бройлер-балапандарының өнімділігіне әсері зерттелінді. Дене салмағы, құс басының сақталуы, қанды биохимиялық талдау және бөлмедегі микроклимат есепке алынды. Зерттеулердің нәтижесінде, басқа топтағылармен салыстырғанда, зоотехникалық және гематологиялық жоғары көрсеткіштерді есепке алу арқылы, құсхана еденінің ауданы бойынша 23 бас/$м^2$ отырғызу тығыздығының тиімді екені анықталды.

ИЗМЕНЕНИЕ ПРОДУКТИВНОСТИ ЦЫПЛЯТ-БРОЙЛЕРОВ ПРИ РАЗЛИЧНОЙ ПЛОТНОСТИ ПОСАДКИ В ЗАКРЫТЫХ ПОМЕЩЕНИЯХ

Ш. Альпейсов, А. Танатаров, Ж. Кусаинова

Казахский национальный аграрный университет, Алматы, Казахстан

Ключевые слова: закрытое помещение, цыплята-бройлеры, масса тела, гематологические параметры, плотность посадки.

Аннотация. Исследование проведено на птицефабрике "АлатауКус" в Алматинской области на цыплятах-бройлерах кросса "Росс308" с суточного до 42- дневного возраста. Изучено влияние различной плотности посадки (19 гол/м^2, 21 гол/м^2 и 23 гол/м^2 площади пола птичника) на продуктивность цыплят-бройлеров. Учитывались живая масса,сохранность поголовья, биохимический анализ крови и микроклимат в помещении. В результате исследованийвыявлено, что наиболее эффективной была плотность посадки 21 гол/м^2 площади пола птичника при которой учитываемые зоотехнические и гематологические показатели были выше в сравнении с другими группами.

Поступила 09.06.2015г.

N E W S
OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
SERIES OF AGRICULTURAL SCIENCES
ISSN 2224-526X
Volume 4, Number 28 (2015), 8 – 12

EFFICIENCY OF PREPARATION ARTEZUNATUM AGAINST THEYLERIOZIS, BABEZIOZIS AND PIROPLASMOSIS OF CATTLE

M. S. Batyrkhanov, B. B. Masenov, M. T. Tazabekova, M. D. Keneshbaev

LL"Shitemir", Almaty, Kazakhstan.
E-mail: mk_oligarh@mail.ru

Keywords: artezunatum, theileriasis, babesiosis, piroplasmosis cattle.

Abstract. Based on these results, we recommend to use the drug if Artezunatum invasive diseases of cattle - theileriasis, babesiosis and piroplasmosis.

The drug has a pronounced theileriosis action. It has a quick effect providing symptom relief within 1-3 days. After administration of a rapidly hydrolyzed to the active metabolite - dihydroartemesinin. The mechanism of action is associated with the activation of peroxide oxidation and free radical damage to cell membranes and intracellular proteins of the parasite. The spectrum of activity expressed hematoschizontosis effect on all kinds of schizonts.

Data on studying of efficiency of a preparation Artezunatum against a theyleriozis, a piroplasmosis and a babeziozis of cattle are provided. As a result of the conducted researches it is established that the preparation possesses high efficiency when using against a theyleriozis, a piroplasmosis and a babeziozis of cattle and doesn't cause side effects for animals.