

Influence of the differentiated by live weight growing and feeding of the parent herd of turkeys of cross «Kharkivskyy» on their reproduction

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The purpose. To study the influence of technological method — differentiated by live weight growing and feeding of the parent herd of turkeys of cross «Kharkivskyy» on their reproductive properties.

Methods. Zootechnical, zoohygienic and statistical. At the age of 30 weeks, all the turkeys were transferred to the parent herd, where they continued to be kept and fed in groups. The nutritional characteristics of the feed, which was fed to turkeys of all groups, were similar and met the requirements. During the studies, egg production, poultry safety, feed consumption were determined according to daily data. Egg incubation parameters were determined by visual inspection, weighing and scattering of all obtained eggs and the results of their incubation. **Results.** The positive effect of the proposed technological technique on egg production, the yield of hatching eggs and total yield of turkeys per initial turkey was established. The data obtained indicate the advantage of the experimental groups of turkeys compared with the control according to the above indicators, respectively: for the 5th line — by 6.5%, 2.2% and 5 goals.; for the 6th line — by 3.2%, 0.7% and 1.2 goals. In the experimental groups, the lower feed consumption per 10 pieces of obtained eggs was also observed (at growing turkeys of the 5th line — by 9.7%, 6th — by 7.3%). **Conclusions.** Differentiated by live weight growing and feeding of the parent herd of turkeys of cross «Kharkivskyy» helps to increase their reproductive performance.

Key words: *poultry farming, turkeys, parent flock, maintenance, feeding, technology.*

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Climatic conditions and geographical location of Ukraine contribute to the development of turkey breeding. However, it can be competitive only with appropriate scientific and technical support, in particular: the creation and use of turkey crosses adapted to local conditions of retention and feeding, the development and implementation of economically sound resource-saving technologies for the production of high-quality products that meet the requirements of the consumer, providing the sub-sector with the necessary scientific and technical and normative literature.

Analysis of recent research and publications

The turkey cross "Kharkivskyy" (X-56) was created at the Institute of Poultry Farming of the UAAS on the basis of the experimental farm "Borky" in 1976. The starting lines of the cross: line "5" - parent, line "6" – maternal [1]. When growing repair young animals and the maintenance of adult birds, the following main methods of retention are used: on the floor (deep litter, mesh or planar floor), idle in poultry houses; on the floor with walking; in cages batteries. It was precisely in cages batteries that until the year 2010 they kept the parent herds of the turkey cross "Kharkivskyy" in the state enterprise "Borky". At the same time it was observed that when planting repair turkeys in cages batteries, the difference in live weight of individual individuals is 3 kg, which, with the joint containment of individuals of different live mass in the same cages, leads to oppression of weaker and light turkeys more severe and stronger. In this regard, a research was carried out at the IP UAAN, on the basis of which it was proposed to use differentiated live weight for keeping turkeys in the tiers of cages batteries. This made it possible to increase the egg productivity of the turkeys of the parent stock by 6.53%, the yield of young animals by 1.7%, and obtaining 4,4 indexes per baseline more than in the control group [2].

At the same time, it was proposed to feed the turkeys according to their live weight. For this purpose, the design of a special feeder was developed at the IP UAAN, which ensured a smooth change in the

dose of feed per unit of feed forward length and a differentiated supply of feed in different stages of the cages battery.

There were also developed modes of feeding the turkeys of the parent stock, depending on the live weight of the bird, the temperature at the place of its placement, the planned increase in live weight and egg productivity. Application of the developed modes of feeding birds in a differentiated live weight of turkeys in the tiers of cages batteries provided an increase in egg productivity of females by 15.7%, a decrease in the specific consumption of feed in a calculation of 10 eggs for 1 derived indices by 18.1% [3].

In 2003-2004 such studies at the Institute of Poultry Farming of NAAS were conducted with a parent stock of egg chickens. It has been established that differentiated by live weight of their content on the tiers and sides of the cages battery (sieve-hungry), it is possible to increase the weight of the hens for 240 days of the productive period by 1.8 pieces, the weight of eggs for 1,6 g, promotes the increase of the bird's preservation on 2.0% [4].

Modern technologies foresee a separate article on the cultivation of young animals of various kinds of poultry for meat, one of the goals of which is the equalization of bird by weight and elimination of the domination of one part of the bird over the other, differentiated their feeding [5].

In the developed indigenous countries (Great Britain, Canada, France, etc.) also distinguish three main turkey rearing systems: 1) Conventional (enclosed) housing; 2) turkey keeping in Pole barn housing 3) free-range turkey keeping (Free-range). Similar ways of growing and keeping turkeys are used in the USA, which produce about half of all turkey meat in the world. If before the turkey was, basically, meat for holidays, then now it is popular all year round. During the period of cultivation, 2-3 types of premises are used: the broiler mothers - up to 6-8 weeks of age, then they are transferred to a poultry house with walkways, and at the end of the cultivation, a lightweight room or awning can be used [6, 7, 8].

When establishing the landing density for turkeys in Western Europe, the Codex of Recommendations ("Welfare Code") of the European Farm Animal Welfare Council (FAWC) is followed. According to these recommendations, the minimum area for keeping poultry should ensure that the bird can stand freely, come back, sit, spread the wings [9, 10]. In the case of abstinence of turkeys in poultry houses with controlled microclimate, at a rate of 1 kg of live weight of poultry, not less than 260 cm² of floor area or 38.5 kg of live weight of poultry per 1 m² should be present; when keeping poultry in poultry houses with wagons - no more than 24.4 kg / m², free-flowing maintenance - 19.4 kg / m². However, it is also noted that in many farms without significantly affecting the performance of poultry, provided that strict compliance with the optimal parameters of the microclimate and quality control of the litter, a significantly higher density of poultry planting, up to 60 kg / m², is used. A formula is also given for calculating the specific floor area by 1 point. $A (m^2 / head) = 0.0459 W^2 / 3$,

where W - live weight of bird, kg.

In recent years, the live weight of the turkey cross "Kharkivskyy" has also considerably increased. If in 1988 the female crosses, for example, in the 17-week-olds had a live weight of 4.5 - 5.2 kg, males 7.2 - 8.3 kg, then in 2015, respectively 6.5 - 7.1 and 9.4 - 10.5 kg. In this connection, the parent stock of cross of the herd was transferred to the floor keeping and became a topical issue of keeping and feeding the parent herd of the turkeys of the cross "Kharkivskyy"-differentiated on live weight during the maintenance on the floor.

The purpose of the research. The study of the influence of technological reception - differentiated by the live weight of the maintenance and feeding of the parent herd of the turkeys of the cross "Kharkivskyy" on their reproductive qualities.

Research methods. The work was carried out in the conditions of the experimental farm "Preservation of the state poultry gene pool" SPRS NAAS. The study lasted 20 weeks. By the age of 20 weeks, turkeys were grown without separation for live weight for normative technological maintenance parameters, fed according to the feeding standards of the cross "Kharkivskyy" taken in the SPRS NAAS. At the age of 20, the whole livestock population was weighed and the bird of each line was formed into 2 groups of turkeys: controls - 35, and experimental (102 chaps - 5 lines and 105 chaps - 6 lines). In

turn, the experimental groups were divided by live weight into three weight classes (subgroups) conventionally named: light (L), average (C) and heavy (B), respectively, 34 and 35 goals.

After separation, the turkeys of each group and subgroup were kept in separate sections for normative parameters of density of planting, feeding and feeding front. Turkeys of control groups continued to be fed in accordance with the feeding standards adopted by the SPRS NAAS.

The turkeys of the experimental groups were fed differentially depending on the live weight, the expected increase in live weight and the temperature in the room. In this case, the calculation of doses of feed was carried out using the formula below [5].

$$M = \frac{C^{0,75} (724 - 8,16T) + 23dM}{OE}$$

where M – live weight of bird, kg;

C,[°]T – air temperature in the zone of placing the bird,

dM – expected increase in live weight of poultry, g / day;

OE - exchange energy 1 g feed, kJ.

Correction of the dose for sucking the turkeys of experimental groups was carried out at least once a week. The average live weight of poultry for calculations was determined by weekly weighing of 20-30 turkeys of each weight category, the average temperature according to the weekly thermographs, expected average weekly gain of live weight, was taken on the passport data of the cross over the following week.

At the age of 30 weeks, all the turkeys were transferred to a parent herd, where they continued to be kept and fed in groups.

The nutritional characteristics of feed fed to turkeys of all groups were similar and met the requirements of the "Recommendations on the rationing of feeding of farmed poultry" (Birki, 2014).

In the course of research, we determined the carrying capacity, the keeping of the bird, the consumption of feed, according to the daily records. The incubation quality of the eggs was determined by visual inspection, weighing and ovoscoping of all eggs obtained and the results of their incubation.

Research results. The conducted studies showed a positive effect of the proposed technological acceptance on the weight of turkeys (Table 1), which was higher in the experimental groups (with 6.5-month turkeys keeping 6.5%, on the 6th line by 3.2%). In experimental groups, there were also lower feed costs per 10 of the received eggs (keeping 9.5% of the turkeys by 5.7%, of the 6th line by 7.3%.) There was no significant difference between the groups on the conservation of the birds. The causes of death and rejection of the turkeys of both lines were not related to technological factors.

1. The main zootechnical indices of differentiated by live weight of feeding and feeding of turkeys of the 5th line of the cross "Kharkivsky"

Indicators	Study group				Control group
	Subgroup 1(L)	Subgroup 2(C)	Subgroup 3(B)	In general, in group	
Number of birds, head.	34	34	34	102	35
Savings,%	100,0	94,1	97,1	97,1	100,0
Insufficiency on the initial carrier, pc.	67,5	60,5	64,1	63,9	60,0
Feed costs per 1 point, kg	33,7	35,4	37,0	35,4	36,8
Feed costs per 10 eggs, kg	4,993	5,851	5,772	5,540	6,133

With the maintenance of the turkeys of both lines, the experimental groups also showed a higher yield of incubation eggs (5th line – 2.2%, 6th line – 0.7%) and better incubation rates (Table 2).

2. Incubation qualities of eggs of turkeys

Indicators, 5th line	Study group				Control group
	Subgroup 1(L)	Subgroup 2(C)	Subgroup 3(B)	In general, in group	
Obtained all eggs, pcs.	2310	2041	2167	6518	2099
Average the mass of eggs, g	82,92±0,68	84,58±0,69	86,24±0,69*	84,36±0,49	83,73±0,82
Exit of incubation eggs,%	91,6	92,6	92,7	92,3	90,1
Output of incubation eggs per initial calf, pc.	61,8	56,0	59,4	59,0	54,1
Fertility of eggs,%	92,1	90,1	93,4	91,9	90,3
Hatchability of eggs,%	91,4	93,6	89,5	91,5	91,2
Output of young,%	84,1	84,3	83,7	84,0	82,4
Output of young animals per unit of initial calving,%	52,0	47,2	49,7	49,5	44,5
Feed costs per 1 incidence, kg	0,648	0,750	0,745	0,715	0,827

Indicators, 6th line	Study group				Control group
	Subgroup 1(L)	Subgroup 2(C)	Subgroup 3(B)	In general, in group	
Obtained all eggs, pcs.	2184	2146	2180	6510	2104
Average the mass of eggs, g	84,30±0,89	85,73±0,71	85,93±0,76*	85,32±0,71	83,71±0,69
Exit of incubation eggs,%	91,4	92,8	92,9	92,3	91,6
Output of incubation eggs per initial calf, pc.	57,0	56,9	57,9	57,2	55,1
Fertility of eggs,%	91,3	90,9	91,8	91,3	92,3
Hatchability of eggs,%	91,3	91,5	90,9	91,2	91,6
Output of young,%	83,3	83,2	83,4	83,3	84,5
Output of young animals per unit of initial calving,%	47,5	47,3	48,3	47,7	46,5
Feed costs per 1 incidence, kg	0,678	0,719	0,814	0,738	0,791

Thus, the application of the proposed method of administration allowed to increase the number of turkeys received per basin compared to control: with the maintenance of turkeys 5 lines – by 5.0 goals; keeping turkeys 6 lines – by 1.2 goals.

Conclusions

The differentiated live weight of the maintenance and feeding of the parent herd of the turkeys of the cross “Kharkivskyy” has a positive effect on their weight, the yield of incubation eggs and the total yield of turkeys per primary turkey. The indicated indices of the turkeys of the experimental groups were

dominated by similar indices of the turkeys of the control groups, respectively: while keeping the 5th line by 6.5%, 2.2% and 5 goals; with keeping turkeys of the 6th line by 3.2%, 0.7% and 1.2 points. Differentiated by live weight maintenance and feeding of turkeys also contribute to reducing feed costs by 10 pcs. received eggs and 10 goals. Indicator indices: keeping turkeys of the 5th line respectively by 9.7% and 13.5%; 6th line at 7.3% and 6.7%. There was no significant difference between the groups on the conservation of poultry.

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