PERFORMANCE OF ROSS 308 BRIOLER CHICKEN WITH COMMERCIAL MIXTURE FEED

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DOI:10.24412/2500-1000-2023-7-2-20-26

Abstract. *In this experiment which was implemented in 42 days in 2022 on 180 chickens in a private poultry farm in Kabul city, Afghanistan, we monitored the impact of a commercially produced feed mixtures on feed utilization and performance of Ross 308 broiler chickens, kept under the same conditions. Values of body weight at the end of the feeding period, daily and weekly increase of weight, daily feed consumption, nitrogenous proteins and their consumption in different stages of feeding, feed conversion during the feeding period were statistically evaluated and compared between three parts of rearing. Significant differences (P≤0.05) in body weight, feed consumption, daily increment and feed conversion in the tow second week of feeding. Based on the results of the performance we found that the Ross 308 chicks responded most positively to the fed commercially manufactured compound feed in the second two weeks of breeding. But the most adaptable feeding period in the current farming environment, which is ultimately reflected in the reaching of the highest body weight and the lowest feed conversion is the third part of rearing.*

Keywords: *Ross broiler chicken, breeding, nutrition, commercial mixture feed, feed consumption, feed conversion.*

losis and etc. (Perry et al., 2002).

In order to improve health control during the poultry rearing and slaughtering, the HACCP system is implemented, with the implementation of which the health risks of food items are minimized or completely prevented. And on the other hand, the trust of the consumer is attracted to this category of food products (zahidi et al., 2011).

In genetic engineering, the genetic selection of poultry for superior growth rate has arguably been the primary method for increasing productivity. However, many studies have been shown that such selection may be coincidentally accompanied by decreased resistance to diseases or changes in immunological response (Li et al., 2001).

The rapid growth of broilers demands that they be supplied with high quality diets to sufficiently cater for their nutrients requirements. The principal constituent of broilers is soft tissues which are mainly proteins. The protein required by broiler depends primarily on the amount needed for maintenance of health, tissue integrity and for productive purposes. For broilers to meet the protein requirement, the amino acids must be available in the proper amount (Adeyemo et al., 2010).

1. Introduction

The poultry industry, which includes the rearing of domestic chicken, turkey, ducks, geese and certain other birds are kept throughout the world. The prominence of poultry production today is primarily due to the short generation interval and relatively quick turn over on investment and high quality protein from poultry products. Production of poultry meat for the rapidity growing human population is an important system for supplying high-quality protein and provides an interesting source of finance. Human population pressure and creates a need to produce high quality universal food, which are the resources, especially protein, increase the level of income and living standards and therefore in recent years steadily increasing demand for poultry products (Adeyemo et al., 2010).

Say notes that it is poultry meat, including chicken meat compared to other animal species has its own advantages in terms of a rapid return on investment and relatively simple management practices with multiple outlets for products.

However, consumption of chicken meat contaminated with pathogens can cause some diseases in humans such as salmonel-

in Ross broiler chicken increase of weight in Kabul city.

3. Materials and Methods

The experiment was implemented in a private poultry farm in Kabul city, Afghanistan.

The experiment enrolled 1700 pieces of one day old Ross 308 broiler chickens which were placed on rearing farm after using formalin. In each part of rearing period, 60 chickens were randomly selected and transferred to rearing cages, each cage was equipped with feed disperser and water feed was ensured an ad libitum through a self-fount. The air temperature was at the first day 33'C and every week was reduced about 2'C. Custom feeding of chickens abided 42 days.

Chickens were fed to 15 day of age starter feed mixture (powdery form) and from 16 to 30 day of age fed with the growth feed mixture (powdery form) and from 31 to 42 day of age fed with the finisher feed mixture (powdery form). The fed feed mixtures have been produced without antibiotic preparations and coccidiostatics. The average composition and nutritional value of feed mixtures is shown in Table 1.

The basis for the creation and composition of compound feed is used to maximize the achievement of performance expressed predominantly increase of weight at the most economical use of feed and to achieve the highest profit, because it is the object of modern poultry business. Maximum increase of weight in the production of chickens is influenced by compound feed. The Current Feed Formula provides a set of requirements for nutrients and their limitations created specifically for each hybrid combination of chicken, is affected by the price of raw materials and farming a compound feed and also the requirements of the nutritional composition of meat chickens (Cerrate et al., 2009).

Creation and composition of feed mixtures for chickens is important both in terms of the components but also in terms of required nutrients and energy and their ratio. With the increase of nutrients and energy in the compound feed and chicken is expected to increase their body weight without changing the quality of the carcasses of chickens (Donaldson et al., 1957).

2. Aims: Aims of the study was to evaluate the effect of starter, grower and finisher feeds

Table 1. Composition and nutrient composition of diets (%)

Ingredients	Starter diets %	Grower diets %	Finisher diets %
Wheat	35.83	31.21	34.00
Corn	35.00	40.00	37.11
Soybean extract	20.00	21.00	22.00
(48%NL[1])	4.00	-	2.00
Fish meal (71% NL[1])	-	2.20	-
Dried whey	1.60	2.10	1.46
Dried blood	1.00	0.80	0.50
Ground limestone	1.00	0.90	0.80
MCP[2] 22. 7 P[3], 16 Ca[4]	0.10	0.15	0.13
Fodder salt	0.20	0.20	0.20
Sodium hydrogen carbonate	0.10	0.06	0.04
Lysine 78%	0.17	0.23	0.40
Fat – Bergafat	0.50	0.65	0.86
Euromix Br[5]	0.50	0.50	0.50
Nutrient composition			
ME_N (MJ. Kg^{-1})[6]	11.998	12.077	13.077
Nitrogenous proteins ($g.kg^{-1}$)	210.388	191.473	186.089
Linoleic acid ($g.kg^{-1}$)	12.769	13.413	13.700
Pulp ($g.kg^{-1}$)	29.781	29.894	30.00
Methionine ($g.kg^{-1}$)	5.157	5.152	5.155
Lysine ($g.kg^{-1}$)	11.730	9.997	8.876
Calcium ($g.kg^{-1}$)	8.238	7.126	6.124
Phosphorus total ($g.kg^{-1}$)	6.757	6.108	5.994
Phosphorus nonhytate ($g.kg^{-1}$)	3.717	3.112	2.973

(Table 2) in body weight only in the second two weeks of feeding with comparing of starter, grower and finisher feeds.

We found statistically significant differences of the weekly and daily increase of weight in proportion of feed consumption in the second two weeks of comparative feeding.

4. Results

Live weight, weekly and daily increase of weight in different stages of feeding by Ross 308 in Table 2. Daily and weekly feed consumption, energy consumption, nitrogen and feed conversion in different stages of feeding is shown in Table 3.

With statistical evaluation we found significant differences ($P \leq 0.05$) of the results

Table 2. The effect of commercial feed mixtures for body weight, weekly and daily increase of weight in Ross 308

Parameter	Starter diet			Grower diet			Finisher diet		
	x	S.D.	CV%		S.D.	CV%	x	S.D.	CV%
Body mass (g)									
1 week	106.25	13.568	12.77	650.65	87.532	13.45	1644.70	209.988	12.77
2 week	296.45	49.797	16.80	1109.70	138.369	12.47	2114.30	269.944	16.41
Weekly daily increase of weight (g)									
1 week	58.90	13.814	23.45	354.20	44.573	12.58	535.00	110.296	20.62
2 week	190.20	38.362	20.17	459.05	64.217	13.99	621,03	128.032	23.93
Daily increase of weight (g)									
1 week	8.414	1.973	23.45	50.600	6.367	12.58	76.429	15.756	20.62
2 week	27.177	5.480	12.58	65.579	9.174	13.99	89.212	18,391	24.06

Table 3. The effect of commercial feed mixtures for the weekly and daily consumption and convergence of feed in Ross 308

Parameter	Starter diet			Grower diet			Finisher diet		
	x	S.D.	CV%	x	S.D.	CV%	X	S.D.	CV%
Weekly feed consumption (g)									
1 week	99.450	12.699	12.77	521.771	70.158	13.45	980.241	125.152	12.77
2 week	268.584	45.116	16.80	751.267	93.676	12.47	1137.867	145,276	14.82
Daily feed consumption (g)									
1 week	14.202	1.812	12.76	74.546	10.028	13.45	140.035	17.879	12.77
2 week	38.389	6.445	16.80	107.824	12.868	11.93	163.456	20.869	14.90
Energy consumption (MJ)									
1 week	1.191	0.152	12.80	6.301	0.847	13.45	11.807	1.507	12.77
2 week	3.219	0.542	16.84	9.072	1.131	12.47	13.706	1.750	14.82
Nitrogenous protein consumption (g)									
1 week	20.922	2.671	12.77	99.760	13.632	13.66	193.803	25.032	12.91
2 week	56.498	9.491	16.80	143.639	18.202	12.67	224.968	29.057	14.98
Feed conversion ($kg.kg^1$)									
1 week	0.164	0.003	2.32	0.527	0.045	8.57	0.991	0.080	8.145
2 week	0.445	0.013	3.05	0.760	0.060	7.95	1.151	0.093	9.45

demands of different combinations of hybrid chickens (Olugbemi et al., 2010).

Most commercially produced compound poultry feed is produced in granular form because of increased body weight and a reduction in feed consumption, but often they are used for feed and compound feed in powdery form (Choi et al., 1986; Cutlip et al., 2006; Cutlip et al., 2008).

5. Discussion

The basis for the creation and composition of compound feed is kind of hybrid combination of chicken feed mixture will be benefit (Cerrate and Waldroup., 2009).

It is well known that the highest cost of feeding chickens up the cost of feed, representing 80% of the total cost and it is not always possible to produce the compound to the

stage, different nutritional value reached (Abd El-Hakim et al., 2009; Khosravi et al., 2010; Kumar et al., 2010; Makram et al., 2010; Ngambi et al., 2009).

Live weight is closely related to daily increase of weight, which according to breeders at the age of 35 days to be in hybrid Ross 308 57.51 g.

Values of daily increase of weight in feeding experiment under review (Table 8) in the feeding of commercially produced feed mixtures (Table 1) were in the hybrid Ross 308 45.64g (25, 34, 41, 42).

(Kumar et al., 2010; Onyimonyi et al., 2009; Seven et al., 2008; Shalmany and Shivazad., 2006).

The use of feed is the most frequently expressed Feed Conversion (FCR) as feed consumption per kilogram increase in body mass, which is under review for the whole feeding experiment (Table 3) were the lowest by chickens Ross 308 (1.644). Breeding companies recommend 35 days of age in chickens Ross 308 FCR at level 1.62, which is consistent with the values of our experiment (Kamran et al., 2008).

On the basis of the reached results of the experiment of feeding a commercially produced complete feed mixture as well as results of other authors we found that the composition of compound feed, including protein, energy and their ratio is clearly the relationship of conversion and the performance attained by chickens (Bregendahl et al., 2002; Combs and Nicholson., 1964; Donaldson et al., 1957; Saleh et al., 2004).

In terms of performance results we found that the combination of hybrid Ross 308 chickens responded most positively to the fed commercially manufactured compound that is manufactured according to requirements of the breeding business for the hybrids, which ultimately resulted in reaching the highest body weight at the end of feeding and low feed conversion. For this reason, the production of poultry meat using a commercially manufactured compound feed is recommended as the best and the most adaptable for breeding hybrid combination Ross 308 chickens.

6. Conclusion

This study showed that increase of weight

Nutritive value of compound feed used for feeding of chickens affects both those realized their usefulness as well as the overall economics of poultry meat and ensuring uniformity of flock in feeding (Koelkebeck et al., 1993).

The production of compound feed is a reasonable and required content of metabolize able energy and protein levels where the level of protein in feed should be at the start of feeding 23% (Barteczko and Lasek., 2008).

Note that low protein diet, respectively compound feed has an impact on the deterioration in growth performance as well as lean production and yield of broilers (Bregendahl et al., 2002).

On an experiments used feedstuff, which has the content of metabolize able energy in feeding starter phase was from 12.70-12.95 MJ/kg, nitrogenous proteins content of 23-23.20%, lysine content from 1.10-1.17%, the calcium content from 0.92-1.01% and content of non-phytate phosphorus from 0.40-0.50%.

Those cited authors in the growing and final phase of feeding chickens used compound containing metabolize able energy from 12.97-13.33 MJ/kg, protein was from 20.00-22%, lysine content from 0.90-0.97%, the calcium content from 0.89- 1.01% and non-phytate phosphorus content was from 0.40-0.50%. Compared with the nutritional value of feed mixtures used in our verification experiment (Table 1), we found that the addition of lysine content (1.17% starter compound and 0.99% - a growth compound) in have less value as declared in the content metabolized energy (11.99 to 12.07 MJ/kg), nitrogenous proteins (19.14-21.03%), calcium (0.71-0.82%) as well as non- phytate phosphorus (0.31-0.37%) (40).

The live weight of chickens (Table 2) after 35 days of feeding was highest in chickens Ross 308 (1644.70 g). Values of body weight observed hybrids confirmed that the nutritional value of compound feed produced commercially is less than the required value as declared by breeding companies, which are hybrid combinations of the breeder chickens.

Lower values of body weight at the age of 35 days like we do in our experiment with different feeding feed mixtures in different

the growth and weight gain of chickens.

Feed conversion in the final period of rearing was better than the first four weeks of rearing.

on Ross broiler chicken during the breeding period is proportional to the daily food consumption.

But the grower diet that are fed from 15 to 30 days of rearing played an essential role in

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ЭФФЕКТИВНОСТЬ ЦЫПЛЕНКА-БРИОЛЕРА ROSS 308 НА КОММЕРЧЕСКОМ КОМБИКОРМЕ

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Аннотация. *В этом эксперименте, который был проведен в течение 42 дней в 2022 году на 180 цыплятах на частной птицефабрике в городе Кабул, Афганистан, мы отслеживали влияние кормовых смесей промышленного производства на использование корма и продуктивность цыплят-бройлеров Ross 308, содержавшихся в тех же условиях. Значения массы тела в конце периода кормления, суточной и недельной прибавки в весе, суточного потребления корма, азотистых белков и их потребления на разных этапах кормления, конверсии корма в течение периода кормления были статистически оценены и сравнены между тремя этапами выращивания. Достоверные различия (P≤0,05) в массе тела, потреблении корма, суточном приросте и конверсии корма на второй неделе кормления. Основываясь на результатах эксперимента, мы обнаружили, что цыплята Ross 308 наиболее положительно реагировали на комбикорм промышленного производства во вторые две недели разведения. Но наиболее адаптируемым периодом кормления в современных условиях ведения сельского хозяйства, который в конечном счете отражается на достижении наибольшей массы тела и наименьшей конверсии корма, является третья часть выращивания.*

Ключевые слова: *цыплята-бройлеры Ross, разведение, питание, коммерческие комбикорма, расход корма, конверсия корма.*