Egyptian J. Nutrition and Feeds (2024), 27 (3):395-402

EFFECT OF FEED FORM AND COMPOSITION ON CARCASS TRAITS AND BREAST MEAT CHEMICAL ANALYSIS OF BROILERS

A.I.S. Elfaham[1]; M.A.M. Abdelaziz[1]; A.Y.AM. Abdelhady[1]; M.M. Hamed[1]; Nematallah, G. Ali[1]; Marwa, M. Abd-El-Raheem[1]; Safaa, A. M. Ali[2] and A.M. Tammam[1]

[1]Poult. Prod. Dept., Fac. of Agric., Ain Shams Univ., Egypt.

[2]Animal and Poultry Physiology Department, Desert Research Center, Egypt.

(Received 14/10/2024, accepted 13/11/2024)

SUMMARY

The objectives of this study were to test the effects of different feed forms (S1-2), crude protein programs levels (feed programs P1-3) and their interaction in broiler diets on carcass quality and chemical composition of breast meat. In total 180 one-day old broiler chicks of the Indian River strain were used in the experimental with 6 treatments, 30 chicks each in 3 replicates of 10 chicks. The study consisted of a completely randomized experimental design with a 3 X 2 factorial arrangement of treatments and three program diets (P1-3), P1 (24, 23, 21, 20 and 19%) and P2 (23, 21, 20, and 19%) and P3 (21, 20, and 19%) crude protein respectively, with two feed forms (S1-2), S1 (crumbles/pellets) and S2 (crumbles) diets and their interaction. The experiment tested for 35 days of age and at d 35 of the feeding trial, two birds were selected from each replicate for carcass traits and chemical composition of breast meat. The results showed that all carcass traits weren't affected by feed programs (P1-3), feed forms (S1-2) and their interaction except abdominal fat%. No significant influence of feed programs (P1-3), feed forms (S1-2) and their interaction on breast meat chemical composition (moisture, ash, ether extract and protein %). Conclusion: carcass traits and breast meat chemical composition haven't been affected significantly by different feed programs, feed forms and their interaction except abdominal fat%.

Keywords: *Broilers feed programs, feed forms, carcass traits and breast meat chemical composition.*

INTRODUCTION

There are three main physical forms of broiler feeds: mash, crumble, and pellet. Mash is a uniform mixture of ground feed ingredients. It is the most common form of broiler feed, and it is easy for broilers to eat. However, mash feed can be wasted if it is not eaten quickly. Crumble is a slightly larger and more textured form of mash feed. It is less likely to be wasted than mash feed and can help improve broiler digestion. Pellets are small, cylindrical pieces of feed that are made by forcing ground feed ingredients through a die. Pellets are more digestible than mash or crumble feed and can help improve broiler growth rates. However, pellets can be more expensive than other forms of feed and sometimes can be difficult for young broilers to eat (Behnke, 1996; Acedo-Rico *et al.,* 2010 and Loar and Corzo, 2011)

The need to optimize feed form, protein content, and their interaction is evident, particularly across different growth stages of broiler chickens. The crude protein requirement for broilers varies with age and weight and is influenced by factors such as breed, environmental conditions, and management practices. Consulting with a poultry nutritionist is crucial to determine the optimal crude protein (CP) level for broiler flocks. Inadequate CP levels can hinder growth, while excessive CP leads to environmental pollution through manure.

The physical form of feed can have a significant impact on carcass traits in poultry. Studies have shown that broilers that are fed pellets have a higher breast meat yield and a lower abdominal fat content than broilers fed mash. This is likely because pellets are more digestible and absorb more nutrients than mash feed. Additionally, pellets can help to improve the uniformity of the carcass, as all the birds will eat the same type of feed. Overall, the physical form of feed can have a significant impact on carcass traits in poultry. Pellets are generally considered to be the best option for broilers, as they can help to improve growth performance, feed efficiency, and carcass quality (Massuquetto *et al.*, 2019).

The gizzard is the main food processing organ in bird species, and it reduces the size of ingested items primarily by shearing. It has been reported that gizzard mass relative to body weight augment with augment feed particle size (Nir *et al.*, 1994)

Finally, some authors spoke about the effects of physical feeding form on carcass characteristics.in this regard (Amerah *et al.*, 2007), Sarvestani *et al.* (2006) and Pirzado *et al.* (2015) found that broilers fed pellets had a higher breast meat yield and a lower abdominal fat percentage than broilers fed mash, even when the birds were fed the same nutrient content and were reared in different housing systems.

Mirghelenj and Golian (2009) mentioned some additional points according to type and age of the bird, and the nutrient content of the feed. Moreover, pellets are more easily digested and absorbed by birds than mash, which results in less nutrient loss. Also, pellets are more filling than mash, which can help to reduce the amount of feed that the birds eat. Otherwise, pellets can help to improve the uniformity of the carcass, as all the birds are eating the same type of feed.

According to some studies, physical feed form can influence the sensory, physical, and chemical characteristics of meat, such as color, texture, juiciness, flavor, and lipid composition Feeding pellets instead of mash feed or crumbles can improve the carcass and breast muscle yields, but reduce the intramuscular fat content and tenderness of meat. Feeding different particle sizes of crumbles can affect the feed intake and preference of poultry. Physical feed form can also interact with other factors, such as diet composition, genetics, enrichment, and stocking density, to influence meat quality (Karimirad *et al.*, 2020). Therefore, it is important to consider the optimal physical feed form for different poultry species and production systems to achieve the desired meat quality for consumers.

Furthermore, there is a benefit from diets that help speedy muscle development and growth. It is suggested that maximum muscle growth can be achieved by feeding high-protein diets, although a balance must be preserved between feed costs and carcass value. (Barbut *et al.*, 2022).

On the other hand, a study conducted by Dairo *et al.* (2010) found that broilers fed a diet with a peak protein program 22% protein during the early growth period and then gradually decreasing to 18% had a higher growth rate, a better feed conversion ratio, and a better carcass quality than broilers that were fed a constant protein program 20%.

These studies suggest that the level of protein in the diet can have a significant impact on the productive performance of broilers.

Also, several researchers (Malomo *et al.*, 2013 and Kriseldi *et al.*, 2018) reported that mounting AA density in diets would have a positive effect on performance, especially. Notify that mounting AA density in diets would have a positive effect on performance, especially on breast meat produce.

The aim of this study is to determine the effect of different feed form and crude protein levels (feed programs) in broiler diets on carcass traits and chemical composition of breast meat.

MATERIAL AND METHODS

This study carried out at poultry experimental and research station at shalakan, faculty of agriculture, Ain Shams University, in order to evaluate the differences in carcass quality and chemical composition of breast meat of broiler chicks fed on two feed forms (S 1-2), three crude protein programs levels (feed programs P 1-3) and their interaction.

Birds and management:

Total of 180 one day old broiler chicks of Indian River strain were used for experiment with 6 treatments, 30 chicks each in 3 replicates of ten chicks in (3×2) factorial completely randomize design (two feed forms and three feed programs). Chicks were reared in electrics heated batteries under similar hygienic environmental and managerial condition.

Experimental diets:

The present traits consisted of three program diets (P 1-3), P 1 (24%, 23%, 21,%, 20%, 19% CP), P 2 (23%, 21,%, 20%, 19% CP), and P 3 (21,%, 20%, 19% CP) and two feed forms (S 1-2), S 1 (crumble \ pellet) and S 2 (crumble) and shown in Tables (1 and 2).

Table (1): Experimental design and description of different treatments.

Programs (P)	Shapes (S)	Treatments (T)	Crude Protein %	days	Size (mm)	Form
P1	S1	T1	24.00	1-7	1.5	**Crumbles**
			23.00	8-14	1.5	**Crumbles**
			21.00	15-21	2.5	**Pellets**
			20.00	22-28	2.5	**Pellets**
			19.00	29-35	2.5	**Pellets**
	S2	T2	24.00	1-7	1.5	**Crumbles**
			23.00	8-14	1.5	**Crumbles**
			21.00	15-21	1.5	**Crumbles**
			20.00	22-28	1.5	**Crumbles**
			19.00	29-35	1.5	**Crumbles**
P2	S1	T3	23.00	1-7	1.5	**Crumbles**
			23.00	8-14	1.5	**Crumbles**
			21.00	15-21	2.5	**Pellets**
			20.00	22-28	2.5	**Pellets**
			19.00	29-35	2.5	**Pellets**
	S2	T4	23.00	1-7	1.5	**Crumbles**
			23.00	8-14	1.5	**Crumbles**
			21.00	15-21	1.5	**Crumbles**
			20.00	22-28	1.5	**Crumbles**
			19.00	29-35	1.5	**Crumbles**
P3	S1	T5	21.00	1-7	1.5	**Crumbles**
			21.00	8-14	1.5	**Crumbles**
			20.00	15-21	2.5	**Pellets**
			20.00	22-28	2.5	**Pellets**
			19.00	29-35	2.5	**Pellets**
	S2	T6	21.00	1-7	1.5	**Crumbles**
			21.00	8-14	1.5	**Crumbles**
			20.00	15-21	1.5	**Crumbles**
			20.00	22-28	1.5	**Crumbles**
			19.00	29-35	1.5	**Crumbles**

Measurements:

Carcass traits:

A sample of two randomly selected birds from each replication within a treatment (6 chickens per treatment) was taken at the end of the experiment then weighed, slaughtered by severing the carotid artery and jugular veins, carcasses were left for about 3 minutes until all blood has been drained. The abdominal cavity was opened and the edible offal's (liver, heart, gizzard), and dressing, abdominal fat, lymphoid organs (bursa of Fabricius and spleen) were then weighed to determine their relative weights. After then, the relative organ weights were reported as a proportion to the total live body weight (LBW).

The relative organ weight = (organ weight g / live body weight g) × 100.

Dressing percentage = (carcass weight g / live body weight g) × 100.

Meat quality:

Meat chemical composition was investigated by standard protocols for meat and meat preparations:

- The content in dry matter by the oven-drying method at +105 °C (ISO 1442:1997, updated 2018)
- Crude protein by the Kjeldahl method (ISO 937:1978, updated 2018)
- Crude fat by the Soxhlet method (ISO 1443:1973, updated 2018)
- Crude ash by the incineration method at + 550 °C (ISO 936:1998, updated 2018). Three analytical repetitions were carried out for each sample (breast).

Table (2): Feed ingredients and chemical composition of experimental diets.

Ingredients	Pre-Starter	Starter 1	Starter 2	Grower	Finisher
Yellow Corn	544.17	564.11	620.2	621.19	636.96
Soybean Meal (46%)	370	365	302	328	297
Corn Gluten Meal (60%)	50	34	36	0	0
Calcium Carbonate	12.6	12	11.98	11.72	12
Mono-Calcium Phosphate	8.6	8.8	11.3	11.14	11.17
Soybean Oil	5	5	5	5	5
Broiler Premix**	3	3	3	3	3
Salt (NaCl)	2.2	2.14	2.1	2.16	2.14
DL – Methionine	1.23	1.5	2.24	2.56	2.7
Sodium Bicarbonate	1.1	1.25	2.3	1	1
Emulsifier &Enzymes*	1.1	1.1	1.1	1.1	1.1
HCl – Lysine	0.5	1.6	2.28	1.48	2.43
Choline Chloride	0.5	0.5	0.5	0.5	0.5
Wheat Bran	0	0	0	11.15	25
Total	1000	1000	1000	1000	1000
Crude Protein %	24.86	23.93	2174	20.83	19.85
ME (Kcal/Kg)	2886	2888	2949	2888	2894
Crude Fiber %	3.85	3.84	3.53	3.79	3.76
Lysine %	1.23	1.29	1.19	1.17	1.17
Methionine %	0.52	0.53	0.57	0.57	0.57
Methionine + Cysteine %	0.92	0.90	0.92	0.90	0.89
Calcium %	0.75	0.73	0.75	0.73	0.74
Available Phosphorus %	0.33	0.33	0.37	0.37	0.37
Price (LE / Ton)	11057	10891	11594	10500	11400

** Emulsifier & Phytase & Xylanase Enzymes, ** Vitamins-Minerals mixture supplied per kg of diet: vit. (A), 12000 I.U., vit. (D3), 5000 I.U; vit. (E), 10 mg; vit. (K3), 2 mg; vit. (B1), 1 mg; vit. (B2), 5 mg; vit. (B6), 1.5 mg; vit. (B12), 10 µg; Biotin, 50 µg; Pantothenic acid, 10 mg; Niacin, 30 mg; Folic acid, 1 mg; Manganese, 60 mg; Zinc, 50 mg; Iron, 30 mg; Copper, 10 mg; Iodine, 1 mg; Selenium, 0.1 mg and Cobalt, 0.1 mg.*

Statistical analyses:

Data obtained in this study were analyzed by two-way analysis of variance using the SAS software general linear model (SAS, 2004) and Duncan (1955) as follow:

$Yij = \mu + Si + Pj + (S*P)ij + eijk$

Where:

- Yijk: observation
- µ: overall mean
- Si: effect of the feed shape
- Pj: effect of the feed program
- (S*P)ijk: interaction between feed shape and feed program
- eijk: random error effect.

RESULTS AND DISCUSSION

Effects of feed programs (P1-3) and feed forms (S1-2) on carcass characteristics of broiler chickens:

The results of carcass characteristics and body organs % of broiler chickens as affected by feed program (P1-3), form (S1-2) and their interaction (P1-3) X (S1-2) of 35 days of age are presented in Table (3). Percentages of carcass, total edible ratio, liver, gizzard, heart, spleen and bursa were not significantly affected by feed program (P1-3), feed form (S1-2) or their interaction (P1-3) X (S1-2).

The figures of abdominal fat % indicted significant differences between chicks fed program 2 (P2) diets compared with those fed (P1 and P3) diets. The corresponding figures were 1.612 vs. 1.936 and 1.824% respectively.

Table (3): Effects of feed programs (P1-3) and feed forms (S1-2) on carcass characteristics% of broiler chicks.

Items	Carcass	Liver	Gizzard	Heart	total edible parts	Abdominal fat	Spleen	Bursa
Feed programs (P1-3)								
Program 1 (P1)	69.114	1.525	0.954	0.687	72.28	1.936[a]	0.678	0.262
Program 2 (P2)	68.95	1.465	0.966	0.694	72.08	1.612[b]	0.682	0.267
Program 3 (P3)	68.977	1.642	0.956	0.676	72.25	1.824[a]	0.693	0.267
Feed forms (S1-2)								
Shape 1 (S1)	68.864	1.432	0.961	0.693	71.95	1.606[b]	0.668	0.267
Shape 2 (S2)	69.256	1.411	0.963	0.702	72.33	1.893[a]	0.678	0.259
Interaction (T1-6)								
T1 (P1S1)	68.85	1.618	0.946	0.679	72.09	1.763[c]	0.675	0.268
T2 (P1S2)	68.88	1.247	0.977	0.707	71.81	1.449[d]	0.66	0.267
T3 (P2S1)	69.44	1.362	0.968	0.708	72.48	1.937a[b]	0.67	0.259
T4 (P2S2)	69.07	1.460	0.958	0.695	72.18	1.848[b]	0.687	0.258
T5 (P3S1)	69.05	1.596	0.947	0.672	72.27	2.108[a]	0.689	0.259
T6 (P3S2)	68.9	1.689	0.964	0.68	72.23	1.54[d]	0.698	0.276
Significances								
Feed programs	NS	NS	NS	NS	NS	**	NS	NS
Feed form	NS	NS	NS	NS	NS	**	NS	NS
Interaction	NS	NS	NS	NS	NS	*	NS	NS

a,b,c and d Means in a column with different superscripts differ significantly (P≤0.05)

Moreover, feeding chicks shape 1 (S1) diets gave the lowest abdominal fat % (1.606%) compared the diets with shape2 (S2) diets (1.893%). Besides, the differences between the two treatments were significant.

The values corresponding to the carcass proportions ranged between 68.85% (T1) and 69, 44% (T3), while total edible parts (hot carcass + liver + gizzard + heart) percentages ranged between 71.81% (T2) and 72.48% (T3), besides, the differences between treatments were insignificant. In the same order, the figures of carcass and total edible parts% indicted insignificant difference between chicks fed different, programs (P1-3) or shape (S1-2) In general, the highest figures of carcass % and total edible ratio were seen when broiler chicks fed on program (P1, 69.114 and 72.28%) respectively or shape (S2, 69.256 and 7.2.33%) respectively.

On the other hand, the obtained data show that there were significant differences in abdominal fat % between different treatments (T1-6), program (P1-3) or shape (S1-2). Chicks fed T3 and T5 (P3 S1) diets reflected higher abdominal fat% compared with other treatments.

These results agree with the finding of Wang *et al.* (2020) who found that there were no significant effects due to dietary CP reduction on carcass traits of broilers. Moreover, lowering dietary CP level by 3% significantly increased abdominal fat%. Also, Yuan *et al.* (2012), Awad *et al.* (2017) and Xie et a1. (2017) found that relative weights of the liver, heart and gizzard were not significantly affected by dietary protein levels. On the other hand, these findings were in contrast with the results obtained by Brandejs *et al.* (2022) who found that broilers that were fed a diet with a higher level of protein 20% had a better carcass quality than broilers that were fed a diet with a lower level of protein 16%.

Effects of feed programs (P1-3) and feed forms (S1-2) on chemical composition of breast meat of broiler chickens:

The results for chemical composition of breast meat of broiler chickens as affected by feed program (P1-3), feed form (S1-2) and their interaction are shown in Table (4). The moisture% of meat was insignificantly lower of chicks fed program 3 (P3) diets than that of those fed (P1-2) diets. Furthermore, meat ash% and ether extract %of chickens fed (P3) diets were insignificantly higher than other feed programs (P1-2). Moreover, there was no significant influence of feed program (P1-3) on crude protein of breast meat and the corresponding values ranged between 25.997% (P2) and 26.434% (P1), however, the differences failed to be significant.

Table (4): Effects of feed programs (P1-3) and feed forms (S1-2) on chemical proximate composition (wet basis) of breast meat%.

Items	Moisture	Ash	ether extract	Protein
Feed programs (P1-3)				
Program 1 (P1)	65.185	3.597	4.784	26.434
Program 2(P2)	65.681	3.426	4.896	25.997
Program 3(P3)	64.972	3.674	4.96	26.394
Feed forms (S1-2)				
Shape 1 (S1)	65.662	3.685	4.654	25.999
Shape 2 (S2)	63.889	3.797	5.067	27.247
Interaction (T1-6)				
T1 (P1S1)	64.967	3.837	5.243	25.953
T2 (P1S2)	66.397	3.014	4.548	26.041
T3 (P2S1)	66.138	3.351	4.545	25.966
T4 (P2S2)	65.188	4.019	4.762	26.031
T5 (P3S1)	64.448	3.604	4.564	27.384
T6 (P3S2)	63.329	3.99	5.57	27.111
Significantly				
Feed programs	NS	NS	NS	NS
Feed forms	NS	NS	NS	NS
Interaction	NS	NS	NS	NS

There was no significant influence of feed form (S1-2) on breast meat chemical composition (moisture, ash, ether extract and protein%). However, shape 1 diets resulted in insignificantly lower meat moisture % and higher meat (ash, ether extract and protein %) compared with those fed on shape 2 diets.

Insignificant interaction between programs of diets (P1-3) and form diets (S1-2) on breast meat chemical composition. The results indicated that T5 (P3S1) or T6 (P3S2) insignificant decreased meat moisture% and increased protein% compared with other dietary treatments (T1-4), chick's fed T4 (P2S2) showed the highest ash% compared with other dietary treatments, however, the differences failed to be significant.. These results agree with the finding of Emam (2018) who reported levels of CP, AA and interaction between levels of CP, AA and enzyme addition had significant affected chemical composition of broiler meat.

On the other hand, physical feed form can also interact with other factors, such as diet composition, genetics, enrichment and stocking density, to influence meat quality (Karimirad *et al.,* 2020). Therefore, it is important to consider the optimal nutrient density and physical feed form for different poultry species and production systems to achieve the desired meat quality for consumers (Attia *et al.*, 2014).

CONCLUSION

From the present results, it could be stated that, carcass traits and chemical composition of breast meat of broiler chickens were not affected by different feed programs, feed forms and their interaction except abdominal fat%.

REFERENCES

Acedo-Rico, J., Méndez, J. and Santomá, G. (2010). Feed manufacturing. In Nutr. of the Rabbit, 200-221: CABI Wallingford UK.

Amerah, A. M., Ravindran, V., Lentle, R.G. and Thomas, D. G. (2007). Influence of particle size on the performance, digesta characteristics and energy utilisation of broilers fed maize and wheat based diets. Proceedings of the Australian Poult. Sci. Symposium, 19: 89- 92.

Attia, Y. A., El-Tahawy, W. S., El-Hamid, A., Nizza, A., Bovera, F., Al-Harthi, M. A. and El-Kelway, M. I. (2014). Effect of feed form, pellet diameter and enzymes supplementation on growth performance and nutrient digestibility of broiler during days 21-37 of age. Archives Anim. Breeding 57(1): 1-11.

Awad, E.A., Zulkiflia, I., Soleimania, A. F. and Aljuoboria, A. (2017). Effects of feeding male and female broiler chickens on low-protein diets fortified with different dietary glycine levels under the hot and humid tropical climate. Italian J.of Anim. Sci.,. 16: (3) 453- 461 http://dx.doi.org/10.1080/1828051X.2017.1291288

Shai, B. and Leishman, E. M. (2022)."Quality and processability of modern poultry meat." Animals, 12,20: 2766.

Behnke, K. C. (1996). Feed manufacturing technology: current issues and challenges. Anim. Feed Sci. and Tec., 62(1): 49-57.

Brandejs, V., Kupcikova, L., Tvrdon, Z., Hampel, D. and Lichovnikova, M. (2022). Broiler chicken production using dietary crude protein reduction strategy and free amino acid supplementation. Livestock Sci., 258: 104879.

Dairo, F., Adesehinwa, A., Oluwasola, T. and Oluyemi, J. (2010). High and low dietary energy and protein levels for broiler chickens. African J. of Agric. Res., 5(15): 2030-2038.

Duncan, D.B. (1955). Multiple range test and multiple F-tests. Biometrics; 11:1–42.

Emam R.M.S (2018). Effect of dietary porotein levels with or without synthetic amino acids and enzyme supplementation on performance of broiler chicks. Egyp. J.of Nutr. and feeds, 21(1) :199-216.

Karimirad, R., Khosravinia, H. and Kavan, B. P. (2020). Effect of different feed physical forms (pellet, crumble, mash) on the performance and liver health in broiler chicken with and without carbon tetrachloride challenge. J Anim Feed Sci., 29: 59-66.

Kriseldi, R., Tillman, P., Jiang, Z. and Dozier, W. (2018). Effects of feeding reduced crude protein diets on growth performance, nitrogen excretion, and plasma uric acid concentration of broiler chicks during the starter period. Poult. Sci., 97(5): 1614-1626.

Loar, R. and Corzo, A. (2011). Effects of feed formulation on feed manufacturing and pellet quality characteristics of poultry diets. World's poult. Sci. J., 67(1): 19-28.

Malomo, G., Bolu, S. and Olutade, S. (2013). Effects of dietary crude protein on performance and nitrogen economy of broilers. Sustainable Agric. Res., 2(526-2016-37765).

Massuquetto, A., Panisson, J. C., Marx, F. O., Surek, D., Krabbe, E. L. and Maiorka, A. (2019). Effect of pelleting and different feeding programs on growth performance, carcass yield, and nutrient digestibility in broiler chickens. Poult. Sci.,98(11): 5497-5503.

Mirghelenj, S. A. and Golian, A. (2009). Effects of feed form on development of digestive tract, performance and carcass traits of broiler chickens. Journal of Anim. and Vet. advances 8(10): 1911-1915.

Nir, I., Hillel, R., Ptichi, I., and Shefet, G. (1994). Effect of particle size on performance.: 3. Grinding pelleting interactions. Poult. Sci., 74 (5) :771-783.

Pirzado, S. A., Mangsi, A. S., Barham, G. S., Mari, G. M., Pirzado, Z. and Kalwar, Q. (2015). Effect of mash and crumbled feed forms on the performance of broiler chickens. J. of Agric. and Vet. Sci.,8(12): 27-30.

Sarvestani, T. S., Dabiri, N., Agah, M. and Norollahi, H. (2006). Effect of pellet and mash diets associated with biozyme enzyme on broilers performance. Int. J. of poult. Sci., 5(5): 485-490.

SAS (2004). Statistical Analysis System, SAS User's Guide: Statistics, Inc., Cary, NC. USA.

Wang.W., Wang,W.J., Wu,S.G., Zhang, H.J. and Ql, G.H. (2020). Response of broilers to gradual dietary protein reduction with or without an adequate glycine plus serine level. Italian J. of Anim. Sci.,19.(1)127-136.

Xie M., Jiang, Y., Tang, J., Wen, Z. G., Zhang, Q., Huang, W. and Hou, S.S. (2017). Effects of low-protein diets on growth performance and carcass yield of growing White Pekin ducks. Poult. Sci., 96:1370-1375.

Yuan J., Karimi, A. Zornes, S., Goodgame, S., Mussini, F., Lu, C. and Waldroup, P.W. (2012). Evaluation of the role of glycine in low-protein amino acid- supplemented diets 1. J. Appl. Poult. Res., 21 :726-737 http://dx.doi.org/10.3382/japr.2011-00388.

تأثير شكل وتركيب العلف على صفات الذبيحة والتحليل الكيميائي للحم صدر كتاكيت التسمين

احمد ابراهيم سليمان الفحام[1]، مروان عبد العزيز محمود عبد العزيز[1]، عبد الرحمن يوسف محمد عبد الهادي[1]، محمد مصطفي حامد[1]، نعمة الله جمال الدين علي[1]، مروة مرزوق السيد عبد الرحيم[1]، صفــاء علـي مُصطفـى[2] واحمد محمد تمام[1]

[1] قسم انتاج الدواجن – كلية الزراعة – جامعة عين شمس – مصر

[2] قسم فسيولوجيا الحيوان والدواجن – شُعبة الإنتاج الحيواني والدواجن – مركز بحوث الصحراء – مصر

اجريت التجربة باستخدم كتاكيت التسمين لدراسة تاثير برامج التغذية (3 برامج) وشكل العلف (2 شكل) والتداخل بينهم على صفات الذبيحة والتركيب الكيميائي للحم الصدر.

استخدمت فى التجربة 180 كتكوت تسمين من سلالة IR غير مجنسة قسمت الى 6 معاملات تجريبية بكل معاملة 3 مكررات وكل مكررة 10 طيور في تجربة عاملية (3×2) بها 3 برامج غذائية (P1-3) وشكلين للعلف (S1-2) حيث غذيت الكتاكيت على البرامج الغذائية التالية

- البرنامج الاول P1 على عليقة (سوبر بادى 24% , بادى 1 23%, بادى 2 21%, نامى 20%, ناهى 19%)
- البرنامج الثانى P2 على عليقة (بادى 1 23%, بادى 2 21%, نامى 20%, ناهى 19%)
- البرنامج الثالث P3 على عليقة (بادى2 21%, نامى 20%, ناهى 19%)

وقدمت الاعلاف بشكلين (S1-2) الاول S1 (مفتت 1 – 14 يوم ثم مكعب 15-35 يوم) والثانى S2 (مفتت 1 – 35 يوم)

يمكن تلخيص أهم النتائج المتحصل عليها فيما يلي:

لم تتاثر صفات الذبيحة بالبرامج الغذائية او شكل العليقة او التداخل بينهما فيما عدا % لدهن البطن.

التركيب الكيميائي للحم الصدر لم يتاثر بالبرامج الغذائية او شكل العليقة او التداخل بينهما

الخلاصة:

صفات الذبيحة والتركيب الكيميائى للحم الصدر لم يتاثر بالبرامج الغذائية او شكل العليقة او التداخل بينهما فيما عدا % لدهن البطن.