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Effect of strain, thermal manipulations during incubation on productive performance of Dokii-4 and Golden Montazah chickens

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Abstract

This study aimed to evaluate the impact of strain, thermal manipulations during incubation on the productive performance of chickens. A total of 2250 fertile eggs of both Golden Montazah and Dokii-4 eggs produced from hens at 42 week old. The eggs of both strains were classified into 3 equal thermal treatments (2 strains \times 3 treatments \times 3 replicates \times 125 eggs). All eggs were incubated at 37.5°C and 55-60 % RH during the period from one day till hatch and were considered at the control group, while those in the 2nd and 3rd groups were exposed daily to 35 and 40°C for 3 hours (from 12PM to 3 PM) during 3 successive days (5 to 7 day) of incubation. During the last three days of incubation, eggs were exposed daily to 37 °C and 60-65% RH. The chicks for two strains raised from one-day-old to 16 weeks of age to study the productive performance. The results showed that the chick weight at one-day-old as well as 4, 6, 8 and 16 weeks of age significantly decreased in Dokii-4 chickens, as well as the daily and total body weight gain in the Dokii-4 chicken were significantly decreased during the periods from (0-4), (0-8) and (0-16), Also the daily and total feed consumption during the periods (8-12) and (0-16) significantly decreased in the Dokii-4 chickens as compared with that of the Golden Montazah chickens, While no significant differences between two strains in feed conversion ratio. Referring to the thermal manipulations, the results showed that the chicks body weight at one day old as well as 6, 8, 12 and 16 weeks of age in the 2nd (40°C) group were significantly decreased and the daily and total body weight gain during (0-4), (0-8) and (0-16) were significantly decreased as compared as well as the daily and total feed consumption for chicks produced from eggs exposed high incubation temperature (40°C) during (4-8), (0-8),(8-12),(12-16) and 0-16 weeks of age was significantly decreased as compared with those under 37.5°C (control) and 35°C (low) groups, but no effect due to thermal manipulations strains in feed conversion ratio. No significant differences due to the interaction between the strain and thermal manipulations in productive traits. It could be concluded that the productive traits for Golden Montazah chickens produced from eggs exposed to normal and low incubation temperatures improved significantly as compared with those in high incubation temperature group.

Keywords: Strain, thermal stress, productive traits, Dokii-4 and Golden Montazah chickens

INTRODUCTION

One of the problems challenging the poultry industry in Egypt is the high ambient temperature, which lasts about five months of the year. To solve this problem many studies focused on the use of epigenetic temperature adaptation for the local strains. As known, the incubation conditions, such as temperature, relative humidity, gas exchange, egg turning and light affect the embryonic growth and its development. The incubation temperature is the most critical one Yalçın *et al.*, (2022). The optimum incubation temperatures ranged between from 37.0°C to 38.0°C for chicken eggs (Wilson, 1991). The sources of temperature during incubation phase include the incubator temperature, heat exchange between the embryo and its environment as well as the metabolic heat production of the embryo (French, 1997).

Referring to strain effect, the hatchability percentage and chick weight significantly increased in the Inshas strain as compared to Dokii-4 strain (Ali *et al.*, 2012). Similarly, the male chick weight at hatch was significantly differed between different strains; Shaver C presented the highest significant values, while the lowest weight recorded in Mandarah strain (Taha *et al.*, 2013). The findings of Ali *et al.*, (2012) indicated that Inshas strain had higher daily feed consumption compared to Dokii-4 chickens strain, while no significant differences between both strains in daily feed conversion ratio. Also, Youssef *et al.*, (2014) found that the best total feed consumption and feed conversion ratio of Golden Montazah than those of Fayoumi and El-Salam during the period from 2 to 4 months.

MATERIALS AND METHODS

This study was carried out at the research Poultry Farm, Poultry Production Department, Faculty of Agriculture Sohag University during the period from April 2020 to June 2021.

1. Experimental design

A total of 2250 fertile eggs of both Golden Montazah and Dokii-4 eggs produced from hens at 42 wk old, which purchased from the Animal Production Research Institute, Agricultural Research

Center, Egypt. The eggs of both strains were classified into 3 equal thermal treatments (2 strains × 3 treatments × 3 replicates × 125 eggs). All eggs were incubated at 37.5°C and 55-60 % RH during the period from one day till hatch and were considered at the control group, while those in the 2nd and 3rd groups were exposed daily to 35 and 40°C for 3 hours (from 12PM to 3 PM) during 3 successive days (5 to 7 day) of incubation. During the last three days of incubation, eggs were exposed daily to 37.5°C and 60-65% RH.

2. Studied traits

2.1. Productive traits

2.1.1. Body weight

All birds weighed at hatch, 2, 4, 6, 8, 12 and 16 weeks of age as well as at sexual maturity by using the nearest 1-gram.

2.1.2. Body weight gain

The body weight gain calculated according to the following equation: Body weight gain = $Bw2 - BW1 / \text{Period in days}$, where: BW1 is the weight at the beginning of the period. Where BW2 is the weight at the end of the same period.

2.1.3. Feed consumption (FC/g)

Feed consumption recorded every week as follow:

$$DFC / \text{bird} = \frac{(\text{Initial weight of feed} - \text{final weight of feed}) / 7}{\text{Birds/ live number}}$$

2.1.4. Feed conversion ratio (g feed/g gain): The feed conversion ratio (FCR) i.e. (g feed /g weight gain) calculated as follows: Feed consumption (g)/ Body weight gain (g)

2.1.5. Mortality rate: During the experimental period, dead birds were daily recorded for each replicate and calculated as follow: Mortality rate % = $(\text{Initial chick's number} - \text{final chicks number}) / \text{Initial chicks number} \times 100$.

3. Statistical analysis:

The obtained data statistically analyzed by using GLM, produced by the statistical analysis systems (SAS, 2004). Duncan's new multiple ranges tests (Duncan, 1955) were used to determine significant differences between treatment means. The following linear model by applying:

$$Y_{ij} = \mu + S_i + TM_j + S_i TM_j + e_{ij}$$

Where, Y_{ij} = Observation measured, μ = Overall mean, S_i = Effect of strains ($i = 1, 2$), T_j = Effect of thermal manipulations ($j = 1, 2$ and 3), $S_i TM_j$ =

Interaction between chicken strain and thermal manipulation, E_{ij} = Random error component was normally distributed assumed.

RESULTS AND DISCUSSIONS

Effect of strain, thermal manipulations and their interaction on productive performance for chickens

Body weight

From findings illustrated in Table 1 showed that the chick weight at one-day-old, 4, 6, 8 and 16 weeks of age in Dokii-4 chickens decreased significantly than those of the Golden Montazah chickens. The significant decrease in body weight at different ages may be due to the differences between the breed and strain in body weight (Taha *et al.*, 2010). These results agreed with those of Ali *et al.*, (2012), who found a significant increase in the chick weight at hatch in Inshas as compared to that of the Dokii-4 strain. Also, Taha *et al.*, (2012), who found that the lowest body weight at hatch, 2, 4, 6, 8 and 10 weeks of age were recorded in the Dokii-4 chickens compared with those of

Mandarrah chickens. Referring to the thermal manipulations, the body weight for chicks which produced from the eggs in the 2nd exposed to (40°C) were significantly decreased as compared with those of 1st (control/37.5°C) and 3rd (low/35.0°C) groups at one day old as well as at 6, 8, 12 and 16 weeks of age. The significant decrease in the stressed chick weights may be due to the decrease metabolic rates for chick embryos when the internal egg temperature exceeded 40.0°C during early incubation period (Janke *et al.*, 2002). These results agreed with those of Hulet *et al.*, (2007) who noted that the changes in the eggshell temperature during the incubation period significantly affected chick weight at hatch. The obtained results showed that the chick body weights at 2nd and 4th weeks of age were not affected by thermal manipulations. No effect due to the interaction between strain and thermal manipulations on body weight.

Table 1. Impact of strain, thermal manipulations and their interaction on body weight of chickens

Traits	Body weight (g)					
	1	4	8	12	16	
Effect of strain						
Dokii-4	33.64 ^b	290.22 ^b	595.44 ^b	915.00 ^b	1142.78 ^b	
Golden Montazah	34.68 ^a	327.44 ^a	637.22 ^a	962.78 ^a	1208.89 ^a	
SEM	0.142	4.34	7.26	10.73	9.32	
Effect of thermal manipulations (TM)						
1 st group (Control/37.5 °C)	35.06 ^a	327.83 ^a	647.33 ^a	984.17 ^a	1244.17 ^a	
2 nd group (HIT/40°C)	33.33 ^c	289.50 ^c	585.00 ^c	883.33 ^b	1091.67 ^c	
3 rd group (LIT/35°C)	34.09 ^b	309.17 ^b	616.67 ^b	949.17 ^a	1191.67 ^b	
SEM	0.175	5.32	8.89	13.15	11.42	
Effect of interaction (S×TM)						
Dokii-4	37.5°C	34.65	310.66	624.67	958.33	1213.33
	40°C	32.73	275.00	566.67	860.00	1058.33
	35 °C	33.65	285.00	595.00	926.67	1156.67
Golden Montazah	37.5°C	35.47	345.00	670.00	1010.00	1275.00
	40°C	33.93	304.00	603.33	906.67	1125.00
	35 °C	34.53	333.33	638.33	971.67	1226.67
SEM	0.247	7.53	12.58	18.60	16.15	
Probability						
S	0.001	0.001	0.002	0.010	0.001	
TM	0.001	0.002	0.002	0.001	0.001	
S×TM	0.724	0.445	0.937	0.983	0.967	

A, b and c Means with different superscripts in the same column are significantly different ($P \leq 0.05$).

S= Strain, TM= Thermal manipulations, S×TM= interaction

Body weight gain

From results tabulated in Tables 2 & 3 the daily and total body weight gain in the Dokii-4 chicken were significantly decreased as compared with the Golden Montazah chickens during the periods from (0-4), (0-8) and (0-16). The significant decrease may be due to the lower body weight during these periods. These results are

agreed with Taha *et al.*, (2012), who found that the lowest daily and total body weight gain in Dokii-4 chickens during (4-6), (6-8), (6-8), (8-10) and (10-12) as compared with those of Mandarah chickens. In contrast, Youssef *et al.*, (2014), who found that the highest body weight gain of Golden Montazah than those of Fayoumi and El-Salam during 2 to 4 months.

Table 2. Impact of strain, thermal manipulations and their interaction on daily body weight gain of chickens

Traits	Daily body weight gain (g)						
	0-4	4-8	0-8	8-12	12-16	0-16	
Effect of strain							
Dokii-4	9.16 ^b	10.90	10.03 ^b	11.41	8.13	9.90 ^b	
Golden Montazah	10.45 ^a	11.06	10.75 ^a	11.62	8.79	10.48 ^a	
SEM	0.15	0.21	0.13	0.43	0.51	0.08	
Effect of thermal manipulations (TM)							
1 st group (Control/37.5 °C)	10.45 ^a	11.41 ^a	10.93 ^a	12.03	9.29	10.80 ^a	
2 nd group (HIT/40°C)	9.15 ^c	10.55 ^b	9.85 ^c	10.65	7.44	9.45 ^c	
3 rd group (LIT/35°C)	9.82 ^b	10.98 ^{ab}	10.40 ^b	11.88	8.66	10.34 ^b	
SEM	0.19	0.26	0.16	0.53	0.63	0.10	
Effect of interaction (S×TM)							
Dokii-4	37.5°C	9.86	11.21	10.54	11.92	9.11	10.52
	40°C	8.65	10.42	9.53	10.48	7.08	9.16
	35 °C	8.98	11.07	10.02	11.85	8.21	10.03
Golden Montazah	37.5°C	11.05	11.61	11.33	12.14	9.46	11.07
	40°C	9.65	10.69	10.17	10.83	7.80	9.74
	35 °C	10.67	10.89	10.78	11.90	9.11	10.64
SEM	0.27	0.36	0.22	0.75	0.89	0.14	
Probability							
S	0.002	0.597	0.003	0.734	0.388	0.002	
TM	0.002	0.001	0.002	0.182	0.158	0.001	
S×TM	0.438	0.719	0.932	0.980	0.954	0.968	

A, b and c Means with different superscripts in the same column are significantly different ($P \leq 0.05$).

S= Strain, TM= Thermal manipulations, S×TM= interaction

The daily and total body weight gain during (0-4), (0-8) and (0-16) in the 2nd group (40.0°C) were significantly decreased as compared with those in the 1st (control) and 3rd low (35°C) groups. The significant decrease in chicks body weight gain may be due to the lower live body weight. These results agreed with those of

Abuoghaba (2017), who found a significant decrease in Hubbard broilers body weight gain under thermal manipulations compared with the control group. Also, the findings of Galal *et al.*, (2015) showed a significant decrease body weight gain for Matrouh chicks exposed to thermal group (42-43°C) after hatch as compared with those of the control group (37.5°C) as well as the 2th week

of age. In contrast, Joseph *et al.*, (2006) found that the body weight gain in Ross broiler chicks exposed to 36.6°C during early incubation phase significantly decreased as compared with that of the control group. The obtained results showed that the daily and total body weight gain during the

periods from 0-4, 4-8, 8-12 and 12-16 weeks of age were insignificantly influenced by thermal manipulations.

No significant effects due to the interaction between the strain and thermal manipulations on daily and total body weight gain.

Table 3. Impact of strain, thermal manipulations and their interaction total body weight gain

Traits	Total body weight gain (g)						
	0-4	4-8	0-8	8-12	12-16	0-16	
Effect of strain							
Dokii-4	256.48 ^b	305.22	561.68 ^b	319.48	227.64	1108.80 ^b	
Golden Montazah	292.60 ^a	309.68	602.00 ^a	325.36	246.12	1173.76 ^a	
SEM	4.35	5.904	7.26	12.08	14.36	9.34	
Effect of thermal manipulations (TM)							
1 st group (Control 37.5 °C)	292.60 ^a	319.48 ^a	612.08 ^a	336.84	260.12	1209.60 ^a	
2 nd group (HIT/40°C)	256.20 ^c	295.40 ^b	551.60 ^c	298.68	208.32	1058.40 ^c	
3 rd group (LIT/35°C)	275.96 ^b	307.44 ^{ab}	582.40 ^b	332.64	242.48	1157.08 ^b	
SEM	5.32	7.23	8.90	14.80	17.58	11.44	
Effect of interaction (S×TM)							
Dokii-4	37.5°C	276.11	314.01	590.01	333.67	255.00	1178.68
	40°C	242.27	291.67	533.93	293.33	198.33	1025.60
	35 °C	251.35	310.00	561.35	331.67	230.00	1123.02
Golden Montazah	37.5°C	309.53	325.00	634.33	340.00	265.00	1239.53
	40°C	270.07	299.33	569.41	303.33	218.33	1091.07
	35 °C	298.80	305.00	603.80	333.33	255.00	1192.13
SEM	7.53	10.22	12.58	20.93	24.87	16.18	
Probability							
S	0.002	0.597	0.003	0.733	0.388	0.001	
TM	0.002	0.001	0.002	0.182	0.158	0.001	
S×TM	0.438	0.719	0.932	0.980	0.954	0.968	

A, b and c Means with different superscripts in the same column are significantly different ($P \leq 0.05$).

S= Strain, TM= Thermal manipulations, S×TM= interaction

Feed consumption

The results presented in Tables 4 & 5 indicated that the daily and total feed consumption during the periods (8-12) and (0-16) in the Dokii-4 chickens significantly decreased as compared with those of Golden Montazah chickens. The significant decrease may be due to the differences between breed and strain in body weight (Leeson *et al.*, 1997 and Taha *et al.*, 2010). These results

agreed with those of Ali *et al.*, (2012), who found that Inshas chicken strain had higher daily feed consumption compared with Dokii-4 chicken strain.

The chicks produced from eggs exposed to high incubation temperature at (40°C) during (4-8), (0-8), (8-12), (12-16) and (0-16) weeks of age showed significant decreased in daily and total feed consumption as compared with those which exposed to 37.5°C (control) and 35°C (low)

groups. This significant decrease in feed consumption could be attributed to the suffered dehydration that negatively affects growth and mortality, which may have role in the lower feed consumption and higher mortality in the post hatch period (Wyatt *et al.*, 1985). These results disagreed with those of Ismail *et al.*, (2016), who found a significant increase in feed consumption for Mamoura chickens produced from eggs subjected to thermal stress (39°C) as compared with that of

the control group. Also, the results of Al Sardary and Mohammad (2016) showed a significant increase in feed consumption for Evan broiler subjected to 39.5°C for 4 hours during embryogenesis than those of the control group.

No significant effects on daily and total feed consumption were found due to the interaction between strain and thermal manipulations.

Table 4. Impact of strain, thermal manipulations and their interaction on daily feed consumption

Traits	Daily feed consumption (g)						
	0-4	4-8	0-8	8-12	12-16	0-16	
Effect of strain							
Dokii-4	17.75	34.22	25.99	50.06 ^b	58.56	40.15 ^b	
Golden Montazah	16.94	35.78	26.36	53.00 ^a	61.44	41.79 ^a	
SEM	1.17	0.56	0.73	0.83	0.96	0.41	
Effect of thermal manipulations (TM)							
1 st group (Control/37.5 °C)	17.88	37.50 ^a	27.69 ^a	53.50 ^a	64.33 ^a	43.30 ^a	
2 nd group (HIT/40°C)	15.50	32.50 ^c	24.00 ^b	49.08 ^b	54.33 ^b	37.85 ^b	
3 rd group (LIT/35°C)	18.67	35.00 ^b	26.83 ^a	52.00 ^{ab}	61.33 ^a	41.75 ^a	
SEM	1.43	0.68	0.90	1.03	1.17	0.51	
Effect of interaction (S×TM)							
Dokii-4	37.5°C	17.08	37.00	27.04	52.00	62.00	42.02
	40°C	16.33	31.67	24.00	47.50	53.67	37.29
	35 °C	19.83	34.00	26.92	50.67	60.00	41.13
Golden Montazah	37.5°C	18.67	38.00	28.33	55.00	66.67	44.58
	40°C	14.67	33.33	24.00	50.67	55.00	38.42
	35 °C	17.50	36.00	26.75	53.33	62.67	42.38
SEM	2.03	0.97	1.27	1.46	1.66	0.72	
Probability							
S	0.638	0.077	0.725	0.032	0.058	0.019	
TM	0.312	0.001	0.038	0.035	0.004	0.001	
S×TM	0.604	0.872	0.824	0.985	0.614	0.562	

A, b and c Means with different superscripts in the same column are significantly different ($P \leq 0.05$).
S= Strain, TM= Thermal manipulations, S×TM= interaction.

Table 5. Impact of strain, thermal manipulations and their interaction on total feed consumption

Traits	Total feed consumption (g)						
	0-4	4-8	0-8	8-12	12-16	0-16	
Effect of strain							
Dokii-4	497.0	958.2	1455.4	1401.7 ^b	1639.7	4496.8 ^b	
Golden Montazah	474.3	1001.8	1476.2	1484.0 ^a	1720.4	4680.7 ^a	
SEM	32.8	15.6	41.0	23.5	26.8	46.6	
Effect of thermal manipulations (TM)							
1 st group (Control/37.5°C)	500.6	1050.0 ^a	1550.6 ^a	1498.0 ^a	1801.2 ^a	4849.6 ^a	
2 nd group (HIT/40°C)	434.0	910.0 ^c	1344.0 ^b	1374.2 ^b	1521.2 ^b	4239.2 ^b	
3 rd group (LIT/35°C)	522.7	980.0 ^b	1502.5 ^a	1456.0 ^{ab}	1717.2 ^a	4676.0 ^a	
SEM	40.3	19.1	50.3	28.8	32.8	57.0	
Effect of interaction (S×TM)							
Dokii-4	37.5°C	478.3	1036.0	1514.3	1456.0	1736.0	4706.3
	40°C	457.3	886.7	1344.0	1330.0	1502.7	4176.7
	35 °C	555.3	952.0	1507.3	1418.7	1680.0	4606.0
Golden Montazah	37.5°C	522.7	1064.0	1586.7	1540.0	1866.7	4993.3
	40°C	410.7	933.3	1344.0	1418.7	1540.0	4302.7
	35 °C	490.0	1008.0	1498.00	1493.3	1754.7	4746.0
SEM	56.9	27.0	71.1	40.7	46.4	80.7	
Probability							
S	0.380	0.076	0.725	0.032	0.059	0.019	
TM	0.311	0.001	0.037	0.034	0.004	0.001	
S×TM	0.603	0.872	0.823	0.984	0.614	0.562	

^{A, b and c} Means with different superscripts in the same column are significantly different ($P \leq 0.05$).

S= Strain, TM= Thermal manipulations, S×TM= interaction

Feed conversion ratio (g feed/ g meat)

The results in Table 6 showed no significant effects due to the strain, thermal manipulations and the interaction between strain and thermal manipulations on daily feed conversion ratio.

Mortality rate (%)

Referring to the mortality rate, the results illustrated that there were no effect due to strain and their interactions between strain and thermal manipulations (Table 6).

Also, the results showed that the mortality rate for chicks in the 2nd group was significantly increased as compared with those of the 1st and 3rd groups. The increased mortality rate may be due to the decreased viability and immunity in the chicks after exposure to high thermal stress. These results agreed with those of Yalcin *et al.*, (2009), who found that the increase of incubation temperatures from 37.5 to 39.0°C during incubation phase led to accelerated embryonic development and increased mortality rates as compared with those of the control group.

Table 6. Impact of strain, thermal manipulations and their interaction on daily feed conversion and mortality rate of chickens

Traits	Daily feed conversion (g feed/g meat)						MR (%)	
	0-4	4-8	0-8	8-12	12-16	0-16		
Effect of strain								
Dokii-4	1.94	3.14	2.59	4.39	7.20	4.06	6.86	
Golden Montazah	1.62	3.24	2.45	4.56	6.99	3.99	6.70	
SEM	0.16	0.08	0.09	0.19	0.53	0.05	0.28	
Effect of thermal manipulations (TM)								
1 st group (Control/37.5 °C)	1.71	3.29	2.53	4.45	7.03	4.02	6.06 ^b	
2 nd group (HIT/40°C)	1.70	3.10	2.44	4.68	7.63	4.01	8.27 ^a	
3 rd group (LIT/35°C)	1.95	3.19	2.59	4.42	7.29	4.04	6.02 ^b	
SEM	0.20	0.10	0.11	0.23	0.65	0.07	0.34	
Effect of interaction (S×TM)								
Dokii-4	37.5°C	1.73	3.30	2.57	4.37	6.85	3.99	6.12
	40°C	1.89	3.04	2.52	4.61	7.99	4.07	8.40
	35 °C	2.26	3.07	2.70	4.35	7.63	4.10	6.70
Golden Montazah	37.5°C	1.69	3.28	2.50	4.53	7.21	4.04	6.00
	40°C	1.52	3.16	2.37	4.74	7.26	3.95	8.13
	35 °C	1.64	3.30	2.48	4.49	6.95	3.98	5.97
SEM		0.28	0.15	0.15	0.33	0.92	0.09	0.48
Probability								
S		0.167	0.391	0.279	0.608	0.652	0.398	0.689
TM		0.620	0.471	0.643	0.705	0.815	0.934	0.001
S×TM		0.607	0.701	0.887	0.100	0.804	0.592	0.982

^{A, b} Means with different superscripts in the same column are significantly different ($P \leq 0.05$).

MR (%) = Mortality rate percentage. S= Strain, TM= Thermal manipulations, S×TM= interaction

CONCLUSION

These results concluded as follow: -

1. The chick weight at hatch as well as 4, 6, 8 and 16 weeks of age significantly decreased in Dokii-4 chickens as compared than those of Golden Montazah chickens.
2. The body weight gain in the Dokii-4 chicken were significantly decreased as compared to the Golden Montazah chickens during the periods from (0-4), (0-8) and (0-16).
3. The feed consumption during (8-12) and (0-16) in the Dokii-4 chickens significantly decreased as compared with that of the Golden Montazah chickens.
4. The chick body weight at one day old as well as 6, 8, 12 and 16 weeks of age in the 2nd (40°C) group were significantly decreased compared with those of 1st (control/37.5°C) and 3rd (low/35.0°C) groups.
5. The body weight gain of chicks produced from eggs exposed to high incubation temperature (40.0°C) 2nd group was significantly decreased as compared with those in the 1st (control) and 3rd low (35°C) groups.
6. The feed consumption for chicks produced from eggs exposed high incubation temperature (40°C) significantly decreased during (4-8), (0-8), (8-12), (12-16) and 0-16 weeks of age was

compared with those under 37.5°C (control) and 35°C (low) groups.

7. Referring to mortality rate, there were no effect due to the strains and the interactions between strains and thermal manipulations, while it significantly increased in the 2nd group compared than those of the 1st and 3rd groups.

The obtained results showed that the Golden Montazah chicks were more tolerant to the high incubation temperature than Dokii-4 chicks. Therefore, it could be recommended to raise the Golden Montazah chicks successfully economically especially for small farmers and breeders under Sohag conditions.

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تأثير السلالة ، المعاملات الحرارية على خلال التفريخ على الأداء الإنتاجي لدجاج الدقى-4 و المنتزة الذهبى

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هدفت هذه الدراسة لمعرفة تأثير المعاملات الحرارية خلال التفريخ على سلتي دجاج المنتزه الذهبي والدقى-4 على الأداء الانتاجي لسلالتى دجاج الدقى4 والمنتزة الذهبى. اشتملت هذه التجربة على عدد 2250 بيضة مخصبة المنتجة من دجاج كلتا السلالتين قسمت بالتسوى إلى ثلاث معاملات حرارية (2سلالتين × 3 معاملات × 3 مكررات × 125بيضة مخصبة). ولقد تم تعريض البيض في المجموعة الاولى الى درجة حرارة التفريخ الطبيعية (37.5 مئوي و 50-55 % رطوبة نسبية) من اليوم الأول حتى 18 واعتبرت مجموعة الكنترول، بينما تم تعريض البيض في المجموعة الثانية والثالثة لـ 40 درجة مئوي (مجموعة الحرارة المرتفعة) و 35 درجة مئوي (مجموعة الحرارة المنخفضة) يوميا لمدة 3 ايام (5-7 يوم من التفريخ لمدة 3 ساعات من الساعة 12 الى الساعة 3ظهرا) لكلا السلالتين. تم تعريض بيض بالمجموعات المختلفة الى 37 درجة مئوي و60-65% رطوبة نسبية خلال الثلاث ايام الأخيرة من التفريخ حتى الفقس ، تم تربية كلا من السلالتين من عمر يوم حتى 16 اسبوع لدراسة الأداء الإنتاجي. أوضحت النتائج انخفاض معنوي بوزن الجسم للكناكيت عند عمر اليوم الأول، 4، 8، 12، 16 اسبوع وكذلك بالمثل معدل الزيادة الوزنية خلال الفترات من (0-4)،(0-8) و(0-16)،و أيضا معدل استهلاك العلف اليومي والكلية خلال الفترات (8-12) و(0-16)، بينما لا توجد فروق معنوية في معدل التحويل اليومي لاستهلاك العلف في دجاج سلالة الدقى 4 مقارنة بدجاج سلالة المنتزة الذهبى. بالأشارة الى تأثير المعاملات الحرارية أوضحت النتائج انخفاض معنوي بوزن الجسم للكناكيت عند عمر اليوم الأول، 4، 6، 8، 16 اسبوع في المجموعة التي عرض البيض فيها لدرجات الحرارة المرتفعة (40 م°) و معدل الزيادة الوزنية خلال الفترات (0-4)، (0-8)، (0-16) وكذلك بالمثل معدل الاستهلاك اليومي والكلية للعلف خلال الفترات (4-8)،(8-12)،(12-16) و(0-16) اسبوع من العمر مقارنة بالمجموعة المعرضة لدرجات حرارة الكنترول (37.5 م°) والمنخفضة (35 م°)، بينما لا توجد فروق معنوية في المعدل اليومي لتحويل الغذاء. - لم يوجد هناك فروق معنوية نتيجة التداخل بين السلالة والمعاملات الحرارية على الصفات الانتاجية.

الكلمات الإفتتاحية:- السلالة، المعاملات الحرارية، الصفات الأنتاجية، دجاج المنتزة الذهبى والدقى 4