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شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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بعض الوثائق الأصلية تالفة

صفاء أبو السعود محمد

بالرسالة صفحات لم ترد بالأصل

EFFECT OF HEAT STRESS AND FLOCK DENSITY ON PHYSIOLOGICAL AND IMMUNOLOGICAL RESPONSES OF BROILERS

By

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B. Sc. Agric. (Animal Production) Cairo Univ., 1970

M. Sc. Agric. (Animal Breeding) Cairo Univ., 1977

Thesis

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APPROVAL SHEET

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ABSTRACT

This work was carried out on 385 days old commercial Arbor-Acres broiler chicks. This study included: field research carried out at the poultry research center, Animal Production Department, Faculty of Agriculture, Cairo University.

The study aimed to investigate the effects of early heat stress, flock density and heat + density on physiological, immunological and productive performance of broiler chickens raised under Egyptian environmental conditions.

The study included three experiments:

I. Early heat exposure:

1. 71chicks, 3 days old chicks were exposed to heat stress at (42-43°C) for 4 hrs then moved to normal brooding temperature (1st group).
2. Another 96chicks, 5 days old chicks were treated as in the first group (2nd group).
3. 68 chicks were kept at normal brooding temperature (control).
4. At 8 weeks of age, 30 birds from each of the three mentioned groups were heat challenged at 42-43°C for 3 hrs.

II. Flock density studies:

150 chicks, 4 weeks old were divided into three equal groups and kept up to 8 weeks under three different densities:

1. Control group 12 birds/m².
2. Low density 9 birds/m².
3. High density 15 birds/m².

III. Heat stress and flock density:

Twenty two 8 weeks old chicks from each density group were exposed to heat stress (38°C for 2 hrs).

Results:

The most important results obtained are:

I. Early heat exposure:

1. 3 days early heat exposed group had the lowest rectal temperature.
2. Broilers heat stressed at 3 days had significantly ($P \leq 0.05$) higher respiration rates.
3. Before heat challenge at 8 weeks of age, birds acclimated at 3 days had the highest total plasma protein, albumin and globulin concentrations.
4. Heat acclimation at 3 days resulted in significant decrease in broilers sodium while plasma potassium significantly increased in 3 or 5 days acclimated group.
5. Birds acclimated early in life (at 3 days) had the lowest plasma T_3 content.
6. Significantly increased plasma corticosterone concentration after heat stress was observed in all studied groups. Heat acclimated group had the most increase.
7. Early heat acclimated birds at 3 or 5 days had significantly higher antibody titre than the control group.
8. Early heat acclimation at 3 or 5 days of age significantly lowered mortality rate.

II. Flock density studies:

1. Rectal temperature and respiration rate of birds raised under high density conditioned were significantly higher than that of birds reared at normal and low density groups.
2. A tendency to higher plasma T_3 with decreasing density, whereas corticosterone showed tendency to higher concentration with increasing density.
3. Rearing broilers under high density conditions significantly lowered antibody production value.
4. Broilers raised under crowding density had significantly the least body weight.
5. High density group had the highest mortality rate.

III. Heat stress and density studies:

1. Low density followed by heat stress significantly reduced rectal temperature and respiration rate.
2. Heat and high density caused a decreased T_3 and increased corticosterone levels.
3. Birds of high density group had significantly lower antibody SRBC titre.

Nagwa El-far

First of all

Thanks to ALLAH

the compassionate and the most merciful

who enabled me to conduct this work

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