

VARIABLES ASSOCIATED WITH DERMATOSIS IN BROILERS

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ABSTRACT

The skin lesions in broilers are responsible for great losses at the slaughter. Lesions which have no specific classification are categorized as dermatosis in post-mortem examination. The aim of this study was to identify the main variables associated with the presentation of dermatosis through epidemiological study addressing management issues, health and ambience throughout the production period. Data were analyzed by logistic regression, using the score for model selection through the LOGISTIC procedure of SAS. It was identified a set of variables associated with the manifestation of this skin diseases in broilers. The prevalence of dermatosis was 1.31%. The variables whose presence significantly increased the expression of these lesions were: the chicks housed over reused poultry litter, not disinfecting equipment before the housing, reducing the interval between batches, and the use of tubular feeders. Commercial broiler lines and sex showed a great effect on the presence of dermatosis, as well as the housing of broilers in facilities, where the temperature was outside the comfort zone, especially in winter. The housing of poultry in small broiler house showed less manifestation of skin injury. The identification and correction of these variables allows an effective intervention to reduce the manifestation of skin diseases in broilers.

KEYWORDS: dermatosis, broilers, skin lesions, risk factors.

INTRODUCTION

Condemnation of carcasses of broiler chickens caused by skin lesions represents approximately 30% of discard at slaughter. These lesions are only detected during inspection and cause losses of millions of dollars. Lesions which have no specific classification are categorized as dermatosis in post-mortem examination. Studies have shown that partial condemnations by dermatosis reached 1.40% of total of slaughtered broilers (Gioto et al., 2008). The manifestation of these lesions is associated with multiple factors that may act alone or in synergy which makes difficult to control this pathology. The aim of this study was to identify the main variables associated with the presentation of dermatosis through epidemiological study addressing management issues, health and ambience throughout the production period. These informations can be used to proposed rational intervention on these factors, to reduce skin injuries.

MATERIAL AND METHODS

The study of risk factors associated with the manifestation of dermatosis in chickens was conducted from the application of an epidemiological survey, addressing management issues, health and ambience, and disposal of slaughter by dermatosis. Were analyzed 102 broilers aviaries, being a lot per aviary, during periods of breeding, rearing and slaughter. The variables were included in the logistic regression model associated with odds ratios (Odds Ratios), to identify the set of information that better explain the relationship of risk factors, with the manifestation of dermatosis by the LOGISTIC procedure of SAS (1). The selection of explanatory variables to compose the model was conducted using the score model. There were considered only those whose descriptive level of probability was less than 0.25 ($p < 0.25$) in Univariate analysis. The overdispersion of the dependent variable was corrected by statistical Pearson χ^2 . The minimum level of significance was 5%.

RESULTS AND DISCUSSION

From the survey responses was determined the set of risk factors associated with presentation of dermatosis in broilers. The average prevalence of infection was 1.31% in 102 lots assessed. A total of nine variables was related to expression of dermatosis lesions (Table 1). It was found that chicks housed on reused litter were 1.7 times more likely to have dermatosis than those housed on new bed. Schrader et al, 2004, stresses the importance of adequate management of poultry litter on manifestação of skin lesions in chickens. Failure to disinfect equipment before housing the chick in the brooding area is associated with an increase of 1.4 times over the disposal by dermatosis. The reduction in the number of days between batches, before chick placement, increased the chance of onset of lesions. The variables: commercial broiler line and sex showed strong association to the presentation of dermatosis. The use of tubular feeders increased by 1.7 times the odds of the occurrence of skin lesions, compared with feeders tuboflex. It is noteworthy that the tubular handling operations require greater access to people in the aviary, increasing the risk of contamination. Small aviaries with size up to 63 m in length, showed the highest chances of appearance of dermatosis. Chickens housed in the winter had 1.4 times more likely to have dermatosis, than those housed in summer. We observed increased prevalence of skin lesions in broilers, where the ambient temperature in the aviary was out of their comfort zone.

Table 1. Odds Ratio estimates of the prevalence of dermatosis in broilers

Cause of Variation	Odds Ratio	Confidence Interval (95%)		χ^2
1. New poultry litter				
- No <i>versus</i> Yes	1,725	1,134	2,623	0,0108
2. Commercial broiler lines				
A X B	1,686	1,202	2,365	0,0025
A X C	1,442	0,972	2,141	0,0692
C X B	1,169	0,722	1,894	0,5253
3. Poultry Sex				
Male X Female	2,054	1,343	3,141	0,0009
4. Disinfection of equipment				
No X Yes	1,443	1,053	1,977	0,0225
5. Housing season				
Winter X summer	1,429	1,076	1,899	0,0137
6. Feeders type				
Tubular X Tuboflex	1,690	1,309	2,183	<0,0001
7. Size of aviary				
Big X Standard	0,805	0,539	1,203	0,2904
Big X Intermediary	0,818	0,505	1,326	0,4156
Big X Small	1,429	0,853	2,393	0,1746
Standard X Intermediary	1,016	0,724	1,426	0,9259
Standard X Small	1,775	1,201	2,622	0,0040
Intermediary X Small	1,746	1,098	2,779	0,0186
8. Outside thermal confort zone (%)				
	1,013	1,004	1,022	0,0037
9. Interval between batches (days)				
	0,978	0,965	0,992	0,0016

CONCLUSION

This study identified nine risk factors associated with the manifestation of dermatosis in broilers, which allows the rational intervention in the correction of these factors, in order to reduce the manifestation of these lesions.

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