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Determination carcass condemnation causes of broiler chickens (*Gallus Domesticus*) at industrial slaughter house of Shazand, Markazi province of Iran

M. Khodaei-Motlagh^{a,*}, M. Yahyai^b, M.Rezaei^c, A. Eidi^d, MR. Moazami-godarzi^d, I. Hajkhodadadi^a

^aDepartment of Animal Science, Faculty of Agriculture and Natural Resources, Arak University, Arak 38156-8-8349, Iran.

^bPhD student of Nanobiotechnology, Life Science Engineering Group, Department of New Sciences and Technologies, University of Tehran, Iran.

^cDepartment of Food Safety and Hygiene, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

^dGratuaded students of Food Safety and Hygiene, Iran.

*Corresponding Author: Department of Animal Science, Faculty of Agriculture and Natural Resources, Arak University, Arak 38156-8-8349, Iran.

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ABSTRACT

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An experiment was carried out to evaluate the main causes of broiler carcass condemnations in shazand industrial slaughter during the first six months of 2009. Poultry industry occupies a major position in the livestock sector of agricultural production because birds reproduce much quicker to produce meats and eggs for human consumption. Several of the post-mortem inspection conditions that are currently recorded have been identified as potential indicators of on-farm management problems. The data was taken within six months period and carcass condemnation causes were separately recorded based on monthly. In this study six different cause of carcass condemnation were revealed that included septicemia, excessive atrophy, toxicosis, trauma, respiratory infection and peritonitis ascites. Base d on this result excessive atrophy, trauma and septicemia with 32, 23 and 13 percentage of total condemnation frequency respectively was main cause of carcass condemnation and toxicosis with 9 percentage of total carcass condemnation was least

importance of ones. Result of statistical comparison revealed that in different months of experiment about probability of different cause of condemnation was least significantly ($p < 0.05$) in May except excessive atrophy and trauma. There were no significant differences ($p > 0.05$) between frequency of each cause of carcass condemnation in different month of experiment except May. In our study there was significant difference between seasons (spring and summer), the peritonitis ascites, toxicosis, respiratory infections and septicemia have higher frequency rate at summer but trauma and excessive atrophy has higher frequency rate at spring. This difference may occur because of environment conditions that were high in temperature at summer months. On the basis of the results of this study, it was concluded that that excessive atrophy, trauma and septicemia were main cause of condemned carcass of bird in shazand industrial slaughter house within one year of experimentation and this is obligatory to recognize cause of septicemia, excessive atrophy and, trauma in this geographically region for alleviating the efficiency of broiler production. With promoting and guide programs for local producers about these reasons may reduce carcass condemnation rate in industrial slaughter houses.

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1. Introduction

In a developing country there is an inadequate supply of animal protein sources. Sanni and Ogundipe (2005) reported that poultry industry occupies a major position in the livestock sector of agricultural production because birds reproduce much quicker to produce meats and eggs for human consumption within the shortest possible time. FAO (1995) reported that the best logical solution to meat scarcity is to increase broiler chicken production. Poultry meat and eggs will continue to be an abundant source of relatively inexpensive protein. There will no change to the procedures for carrying out post-mortem inspections in the slaughterhouse. Therefore, information gathered on animals slaughtered at an abattoir can be a convenient and inexpensive source of information. Several of the post-mortem inspection conditions that are currently recorded have been identified as potential indicators of on-farm management problems. For this reasons hygienic carcass inspection in slaughter house can use as indicator of meat quality and in other hand for monitoring managements of production and slaughtering process. some study was revealed that septicemia is main cause of carcass condemnation at industrial slaughterery in Gonbadkavous within one year of experiment (Gholamian, et al. 2008). in different study Azizpour, (2012) mentioned that septicemia, ascytes and peritonitis was main cause for condemnation of carcass in Namin province within 2009. Skin diseases are the main reason for condemnation of carcasses in slaughtered broilers (Bergmann et al., 1995). Cellulite can be regarded as one of the most important causes of condemnation of meat chickens Worldwide (Ângela Patrícia et al 2008). This study is aimed at evaluating the main causes of broiler carcass condemnations in shazand industrial slaughter during the first six months of 2009 so with findings of this study producers could take proper management decisions at their farms.

2. Materials and methods

2.1. Experimental site

The study was conducted at the industrial slaughter house of shazand city, markazi province, Iran in 2009.

2.2. Data collection and statistical analysis

The data was taken within six months period and carcass condemnation causes were separately recorded based on monthly. Carcass condemnation causes were classified based on gross inspection, traits and organs lesions that were accordance with the traditional manual of poultry meat inspection. The differences between frequency of different condemnation causes in specific months and seasons was analyzed with statistical software SAS by Chi-square method with 5% level of significance.

3. Results

In this study six different cause of carcass condemnation were revealed that included septicemia, excessive atrophy, toxicosis, trauma, respiratory infection and peritonitic ascites. Based on result of this study at shazand slaughter house total number of condemned carcass during spring and summer were 16487 birds which was separated base on season, 48 percentage (7936 bird) was happened in the spring and 51 percentage (8551 bird) in the summer. The frequency of condemnation and different cause of condemnation in each month is presented on Table 1. Base d on this result excessive atrophy, trauma and septicemia with 32, 23 and 13 percentage of total condemnation frequency respectively was main cause of carcass condemnation and toxicosis with 9 percentage of total carcass condemnation was least importance of ones. Result of statistical comparison revealed that in different months of experiment about probability of different cause of condemnation was least significantly ($p < 0.05$) in May except excessive atrophy and trauma. There were no significant differences ($p > 0.05$) between frequency of each cause of carcass condemnation in different month of experiment except May. Among May and other months there were significant differences ($p < 0.05$) in septicemia,, toxicosis and respiratory infection that had least frequency in this month when compared with other months but trauma has high frequency in compared with other months.

When the reasons of carcass condemnation were compared between seasons was revealed that excessive atrophy and trauma had high frequency at spring but septicemia, respiratory infection, toxicosis and peritonitis ascites have high frequency at summer.

Table 1

Data of condemned carcass based on different months and causes (number).

causes	March		April		May		June		July		August		Total based on cause
	15	-15	15	-15	15	-15	15	-15	15	-15	15	-15	
Septicemia	395		384		206		333		504		369		2191
Excessive atrophy	870		1105		828		708		1060		709		5280
Toxicosis	266		295		185		253		328		288		1615
Trauma	683		282		837		631		835		573		3841
Respiratory infection	263		319		172		249		346		271		1620
Peritonitic ascites	308		307		231		264		492		338		1940
Total based on month	2785		2692		2459		2438		3565		2548		16487

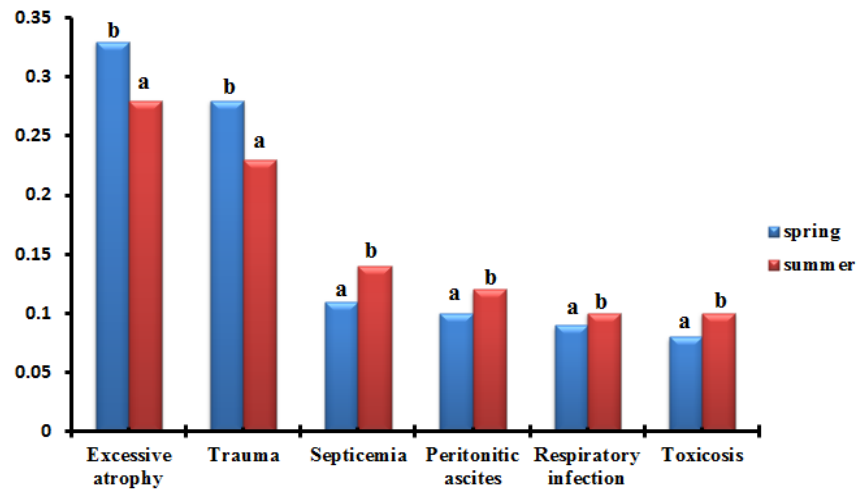
Table 2

comparisons of frequency rate of condemned carcass causes in different months.

causes	March		April		May		June		July		August	
	15	-15	15	-15	15	-15	15	-15	15	-15	15	-15
Septicemia	14 ^a		12 ^a		8 ^b		12 ^a		14 ^a		14 ^a	
Excessive atrophy	31 ^b		35 ^a		32 ^{ab}		29 ^a		29 ^b		27 ^b	
Toxicosis	9 ^a		9 ^a		7 ^b		10 ^a		9 ^a		11 ^a	
Trauma	24 ^{bd}		26 ^b		34 ^a		25 ^{bc}		22 ^{be}		22 ^{cde}	
Respiratory infection	9 ^a		10 ^a		6 ^b		10 ^a		9 ^a		10 ^a	
Peritonitic ascites	11 ^a		9 ^b		9 ^a		10 ^{ab}		12 ^a		12 ^a	

4. Discussion

Monitoring the cause of different carcass condemnation and revealing the main ones at slaughter house can help the producers and scientists for determination of fault management at production, pre-mortem and postmortem operations. Gholamian 2008 in same study at industrial slaughter houses of gonbad -e- kavous reported that total condemned carcass during one year (2005-2006) was 845 birds that was lower in rate in compared with this study. He revealed that septicemia and excessive atrophy with frequency of 46.87 and 28.28 % were main cause of condemnation and peritonitis ascites with frequency of 0.35 % was least cause of its (1). In our study septicemia and excessive atrophy were main cause of condemnation but toxicosis had lower frequency rate that was not agree with gholamian 1387. In other study azizpour 1390 that monitored the cause of condemnation in Namin city within 2008. He resulted that number of total condemned carcass was 20479 birds (2). Azizpour was showed that septicemia (33.57 %), and peritonitis ascites (32.61 %) have highest rate and tumor (0.03 %) has lowest frequency rate this results were not same with our study in main causes and frequency rate of its. In Fars province during 2002- 2006 in 11 industrial slaughter house excessive atrophy and infections was main cause of carcass condemnation that involved 62 percentage of total condemnation frequency rate (3). Radkowski et al 1996 showed that within 1986-1991, marek disease, salmonella, coccidiosis and respiratory diseases were the main cause of condemnation in Poland (4). Different result from same studies may resulted by different geographical conditions, level of management of production and slaughtering process. In our study there was significant difference between seasons (spring and summer), the peritonitis ascites, toxicosis, respiratory infections and septicemia have higher frequency rate at summer but trauma and excessive atrophy has higher frequency rate at spring (figure 1). This difference may occur because of environment conditions that were high in temperature at summer months.



Fi.1. Comparisons of frequency rate of condemned carcass causes in different seasons.

5. Conclusion

On the basis of the results of this study, it was concluded that that excessive atrophy, trauma and septicemia were main cause of condemned carcass of bird in shazand industrial slaughter house within one year of experimentation and this is obligatory to recognize cause of septicemia, excessive atrophy and , trauma in this geographically region for alleviating the efficiency of broiler production. With promoting and guide programs for local producers about these reasons may reduce carcass condemnation rate in industrial slaughter houses. Effect of season on frequency rate of condemnation causes was significant so in each season especially spring and summer broiler production management must be specific based on more important cause of condemnation in these seasons or months.

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