A study on causes of poultry carcasses condemnation in East Azerbaijan province (North West of Iran) poultry slaughterhouse

Majid Jalilnia¹, Mohammad Hosein Movassagh²*

¹Tabriz Branch, Islamic Azad University, Tabriz, Iran
²Department of Veterinary Medicine, Shabestar Branch, Islamic Azad University, Shabestar, Iran

ABSTRACT

Poultry has become consolidated as the most important source of animal protein for the human population. Defects resulting in carcass downgrading and product losses are caused by diseases, damage to the broiler before slaughter, or maladjusted equipment and manual errors during processing. The aim of the present study was to provide information on the causes of condemnations among poultry carcass in East Azerbaijan province poultry slaughterhouses, Iran. In 2002, of all 14788995 slaughtered poultry in East Azerbaijan province, 55325 poultry carcass were condemned. Cachexia was the most common reason for rejection of carcasses and was responsible for 30.46% of the total condemnations. These results could form the basis of an assessment of trends in condemnations in poultry slaughterhouse and should prove useful to the poultry industry as a baseline data for future comparison.

Keywords: Slaughterhouse; Condemnation; Poultry.

INTRODUCTION

The main objective of the broiler industry is the production of saleable chicken meat. To this end, it is important to minimize the number of condemnations at the processing plant and to maximize meat yield.

To produce a quality chicken meat product from a live broiler involves a series of efficiently-performed, specific tasks completed in a sanitary manner. Before broilers can be processed, they must be raised to market age, caught, cooped, transported and held, then unloaded at the processing plant. Inside the processing plant, broilers are hung on shackles, stunned, bled, de-
feathered, eviscerated, inspected, chilled, graded, packaged and shipped. Because of the complexity of production and processing procedures, several factors may reduce carcass yield and carcass grade [1]. Livestock diseases and condemnation rates at slaughter can give a useful guide to the incidence of the less acute, chronic, mild and subclinical diseases that occur in production animals in regions served by various abattoirs [2,3]. Therefore, information gathered on animals slaughtered at an abattoir can be a convenient and inexpensive source of information [4,5].

Major causes for condemnation of poultry during quality inspection include the following:

Septicemia, which is a systemic disease caused by pathogenic microorganisms and their toxins in the blood. It may result in a variety of visible changes in the carcass and viscera of an affected bird, including swollen, watery tissues, hemorrhages throughout the animal, and a darkened red to bluish discoloration of the skin [1].

Bruising, this is due to the accumulation of blood in tissues outside the vascular system, resulting in discoloration of some parts of the skin and underlying tissues.

A tumor, which is a mass of swollen or enlarged tissue caused by uncontrolled growth of new tissue that has no useful function [1].

Ascites, which is an accumulation of fluid in the peritoneal cavity of the abdomen.

Airsacculitis, which is inflammation of the air sacs (membrane lines, air-filled structures) with the accumulation of fluid or exudates within the cavities. Air sacs may be caused by many different organisms (bacteria, mycoplasma, viruses, or fungi [1].

Avian tuberculosis is a bacterial infection caused by Mycobacterium avium which is closely related to the human and bovine tuberculosis bacteria. Morbidity and mortality are often high in infected flocks. Transmission is via fecal excreta[1].

Birds that spend too much time in the scald tank will become slightly cooked – referred to as an ‘over scald’. This usually occurs due to a break in the line or to poor adjustment of the scald temperature and line speed. Carcasses that are cooked are condemned. Many times, these carcasses will also be machine-mutilated by picking machines. The skin of an affected carcass feels slimy to the touch and slips from the underlying meat which is much whiter than usual [1]. Production of livestock increased over the past three years to reach 11.3 million tons in 2008 from the 10.6 million tons in 2007, and 9.9 million tons in 2006 Meat processing capacity is at 400,000 tons and 140 production units (2009)[6]. In 2008, per capita meat consumption was 26 kg. Iran produced 950,000 tons of red meat and 1,600,000 tons of chicken in 2010[6].

In other regions of Iran are many reports on the cause of carcass and organ condemnations [7,8]. The aim of the present study was to provide information on the causes of condemnations among poultry carcass in East Azerbaijan province poultry slaughterhouses, Iran.
MATERIALS AND METHODS

Official post-mortem inspection records of poultry carcass condemnations in 11 industrial poultry slaughterhouse in East Azerbaijan province, northwest of Iran (Fig-1) (Fig-2). It conducted between 20 March 2002 and 19 March 2003 and it were used to investigate the character and prevalence of poultry loss caused by disease and pathological changes in the province.

Fig-1) East Azerbaijan located on the northwest region of Iran[6].

Fig-2) Densities for poultry populations and production is based on total land suitable for livestock production (Poultry/sqkm) [9].
RESULTS

In 2002, of all 14378959 slaughtered poultry in East Azerbaijan province, 53525 poultry carcass were condemned. Cachexia was the most common reason for rejection of carcasses and was responsible for 30.46% of the total condemnations. All causes of poultry carcass condemnation were shown on figure-3.

![Fig-3) Causes of poultry carcass condemnation in Tabriz (north west of Iran) poultry slaughterhouse(A: Septicemia, B:Cachexia, C:Poisoning, D:Synovitis, E:Bruise, F:Contamination, G:Chronic Respiratory Disease, H:Overcalld carcass, I:Ascite and Peritonitis, J:Tuberculosis, K:Leukosis)](image)

DISCUSSION

At present study, cachexia was the most common reason for rejection of carcasses and was responsible for 30.46% of the total condemnations. After this reason, over calld carcass, septicemia, ascite and peritonitis, C.R.D., bruise and poisoning were responsible for carcass condemnations in East Azerbaijan province.

The incidence of carcass condemnation due to leukosis is very low in East Azerbaijan province. Bozorgmehri Fard et al. reported that 4.48% of total slaughtered broilers were condemned due to cellulitis in Masjid Soleiman slaughterhouse, Iran[10].

At present study, many of the carcasses condemned for disease conditions were emaciated or much lighter in weight than normal birds.

The causes of broiler carcass condemnation were evaluated during November 2005, February, May and August of 2006 (one month in each season) in Nowshahr (north of Iran) poultry slaughters by Hosseini et al. They reported that the main reason for condemnation was preslaughter mortality (dead on arrival)[11]. The overall average of dead on arrival was 0.172% of the total slaughtered birds[11]. The other causes of condemnation were; cachexia, septicemia, air sac infection, ascites, bruising, second contamination, breast blisters and other causes[11].
Food safety is an important issue for public health, because reduction in potential health risks to consumers from human pathogens in food is the most important public concern. It seems that a food safety program must be used in Iran for poultry processing, which it provides a safe food for consumers in Iran. These results could form the basis of an assessment of trends in condemnations in poultry slaughterhouse and should prove useful to the poultry industry as a baseline data for future comparison.

REFERENCES