

MORTALITY OF LAYING HENS AND BROILERS. UNDER DIFFERENT REARING SYSTEMS*

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SUMMARY: Poultry farming under free range alternative production systems has shown an increasing tendency in recent years. In contrast to conventional facilities where all production parameters are controlled by the producer, one of the major constraints identified in free range systems is the inability to control range-related production factors. Free range involves birds living outdoors for a large part of the day with plenty of fresh air, sunshine and open space to roam in, which can promote their health and welfare. However, free range birds may come into contact with adverse factors such as parasites, predators and disease vectors that can contribute to mortality as one of major production parameters in poultry farming. The objective of this study was to report findings of a number of studies to point to differences in mortality rate between conventional birds and birds kept under alternative rearing systems, and identify the most common causes of mortality.

Key words: mortality, free range, broilers, laying hens

Introduction

In conventional egg and poultry meat production, the effect of environmental factors is either very low or absent due to the fact that all parameters that may adversely affect production (diet, temperature, humidity, light regimen) are controlled by the producer. In addition, a high level of biosecurity is relatively easy to achieve under these systems [6]. In contrast, alternative poultry production systems may experience problems with disease vectors and parasites due to a close contact between poultry and feces, parasites and wild birds as vectors of diseases [34]. Outdoor runs may impose increased welfare risks associated with an increased contact with infectious agents, greater difficulties to maintain good hygienic standards, possibly imbalanced diets and predation threats [19]. The major cause of mortality in these systems is a high rate of exposure to diseases and parasites under outdoor conditions, with missing mortality due to predation being recognised as a separate problem [31]. Some of the main reasons for moving poultry production into indoor production facilities include diseases, parasites and predator attacks [8]. This problem has been particularly challenging in recent years as alternative poultry production systems have gained increasing importance. There are still many factors that threaten and constrain this production (avian influenza virus, *Pasturella* and many other parasites, predators, feather pecking and cannibalism). The objective of this paper is to report findings of a number of studies to point to differences in mortality rate between conventional birds and birds produced under an alternative system, and identify the most common causes of mortality.

Mortality of laying hens

When analysing mortality as an important parameter in poultry production, overall conditions in both the barn and free range environment must be considered, since many events and unfavourable conditions can cause bird death [4]. Layer mortality is caused by a number of factors, such as early rearing conditions, farm management during the laying period, and choice of layer strains [36]. Newcastle Disease is believed to one of the most important disease in free-range systems. During outbreaks of the disease up to 80% of the population may die [24].

Under all rearing systems, birds can develop pathological behaviour such as feather pecking and cannibalism, which are among major causal agents of mortality in laying hens. Blokhuis et al. (2007) investigated different layer housing systems and found one-third of all mortality cases to be caused by feather pecking and cannibalism, whereas Weitzenburger et al. (2005) reported that cannibalism accounted for as much as 65.5% of mortality of laying hens housed in a variety of furnished cages. Sparks et al. (2008) surveyed British certified organic pullet producers and found annual mortality to range from <2% to >7%. Most producers reported a mortality rate of less than 5%. Causes of mortality included smothering, non-specific diseases, unknown cause and predation, with smothering and cannibalism accounting for the highest and lowest percentage (2.5% and 6.2%) of all mortality, respectively. In Denmark, Van de Weerd et al. (2009) identified layer mortality of about 10% in free range systems, and 9.0% and 11.9%

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