Analyzing Hatching Problems In Poultry Hatchers

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تحليل مشاكل الفقس فى مفرخات الدواجن

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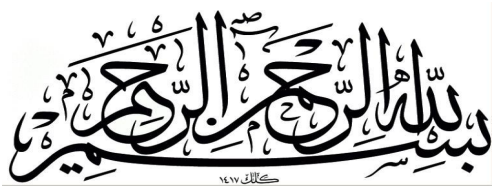

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INTRODUCTION

Hatchability problems have long been the major concern of hatcherymen. Immediate solution to the problems has to be found to ensure profitability. It must be understood that the problem is the result of many factors went wrong in the process of incubation and hatching.

Analysis of all inter-relating factors from breeder flock for completion of hatch including genetics, flock management, health care, nutrition, disease status, complete hatchery workflow from receiving of eggs, storage, fumigation, setting, incubating machine, handling and every link in the chain of hatching helps to know the cause of the problem in hatchery process.

Following information may be helpful to know the causes of the problem in the hatchery; hatch percentage, time and duration of hatch, details of hatched chicks like size, vigour, appearance, navel condition etc, details of all non hatched eggs like stage of embryonic death, pipped dead, chicks alive in shell at the end of hatch (poor quality), percentage and kind of malpositions and malformation. Therefore, breaking out test of all non-hatched eggs is an essential task for analyzing the problems of poor hatch and also in depth study of chicks hatched for their conditions.

An appropriately developed chick within the egg will show certain characteristics; normally the head is under the right wing, the air cell will be large enough to allow the chick to position correctly for hatching and the shell membranes should not dry to the chick during hatch. Thus any dryness, beak, wings and legs deformities should be recorded and analyzed to determine if hatch failure resulted from fertility or environmental problems that can be corrected by changing management procedures.

In commercial operations involving incubation of thousands of eggs, slight drop in percentages of fertility or hatchability leads to considerable losses in profit (Bell et al., ٢٠٠٢). Our goals directed to ensure more profitability, and to get a good hatch of high quality chicks from the eggs, so that every effort should be made to ensure that; hatching eggs are kept free from risks of contamination from the time the hatching eggs are laid until the chicks are delivered to the breeders.

Generally; proper management of breeder flocks, proper handling and care of hatching eggs, and providing all optimum requirements for hatching eggs during incubation, with proper sanitation and management of the hatcheries and incubators, will contribute to solve these problems of hatchability facing many hatcherymen, and to achieve maximum profitability.

The main objectives of this study were**:**

(١) Analysis of hatching problems of four local Egyptian chicken strains (Dokki-٤, Inshas, Mandarah and El-Salam) in seven different hatches.

(٢) Investigation of all embryonic deformities, abnormalities and embryonic age at which mortality occurred in each hatch and strain.

(٣) Estimation of hatchability and fertility percentages among different hatches and for each strain.

(٤) Determination of possible causes associated with hatch failure and providing suggestions for their remedies.

(٥) Estimation of hatch and strain effect on different causes of poor hatchability.

REVIEW OF LITERATURE

Hatch Failure:

Byerly and Olsen (١٩٣٦ a, b), Asmundson (١٩٣٨), Marshall (١٩٤٨) and Robertson (١٩٦١ b) reported that malposition was one of the major factors responsible for poor hatchability of chicks.

Rizk and El- Ibiary (١٩٦٩), Nordskog and Hassan (١٩٧١), Shook et al. (١٩٧١), Hassan (١٩٧٤) and Hassan et al., (١٩٧٧) reported that the presence of adverse effects of inbreeding on hatchability had been found.

Balat (١٩٧٨) reported that a decrease in hatchability was associated with the incidence of defective embryos. In addition, he concluded that the incidence of malformations and malpositions resulted in negative changes in fertility, embryonic viability and hatchability.

Eggs failed to hatch because inadequate diet of the hen, incorrect environment within the incubator, and malposition of the embryo within the egg (Berry, ١٩٩٠).

Problems with hatchability were often related to factors such as infertility, faulty breeder nutrition, disease status, or poor egg handling and hygiene (Tullett, ١٩٩٠).

The constraints in ostrich production were infertile eggs, embryonic mortality, and post hatching leg deformity (Hastings and Farrell, ١٩٩١). Temperature control and relative humidity in the incubator were affect hatchability (Foggin and Honywill ١٩٩٢).

Hallam (١٩٩٢) demonstrated that another factor affecting hatchability; the nutritional status of breeders (egg-laying hens required twice the concentration of total calcium for the formation of the shell and shell membranes of the egg). These observations had been demonstrated in other studies in poultry in which calcium, phosphorus, and protein were required throughout the day for the formation of egg components (Keshavarz, ١٩٩٨).

Doneley (١٩٩٤), Deeming (١٩٩٥), More (١٩٩٦) and Samson (١٩٩٧) identified that environmental conditions such as temperature, humidity, season of lay, duration of storage period of eggs, gaseous environment and orientation of eggs had been shown to influence ostrich hatchability.

Other factors influenced successful egg management included egg weight, yolk quality, nutrition of breeders, age of the breeders, ratio of hens to cocks, egg washing, fumigation, and storage of eggs (Burlini, ١٩٩٤; Badley, ١٩٩٧; Quiles and Hevia, ١٩٩٨).

Artificial incubation of ostrich eggs characterized by low hatchability, therefore, a major source of loss to the producer (Van Zyl, ١٩٩٧). Low hatchability was a result of bad management practices (Cooper, ١٩٩٩).