

# SHORT COMMUNICATION

## SURVIVAL POTENTIAL OF STRESSED CHICKS

E.A.O.LASEINDE

*Department of Animal Production and Health, Federal University of Technology, Akure.*

Received 28 July 1995; Accepted 25 November, 1996

### ABSTRACT

Two hundred and forty day-old broiler, cockerel and pullet chicks were deprived of feed, water, brooder heat or combinations of these to simulate similar careless or accidental farm situations so as to find their effects on chicks survival. The type of birds as well as brooder heat had no significant effect ( $P > 0.05$ ) respectively on survival of chicks exposed to starvation stress. Age of chicks and nature of starvation significantly affected chicks survival. A significant ( $P < 0.05$ ) mortality rate was recorded at ages 4 and 5 days. The maximum survival duration was 8 days for all stressed chicks. Those deprived of only water survived significantly ( $P < 0.05$ ) longer than others.

**Keywords:** Chicks starvation, survival potential, brooding condition.

### INTRODUCTION

Owing to carelessness of poultry attendants, failure to collect ordered chicks from the hatchery on the collection day and other unprecedented accidents, the chicks seldom suffer from deprivation of feed, water, brooder heat or combinations of the three. Limited work has been reported on the effect of chick starvation (Calabotta *et al.*, 1986; Verkamp, 1986) while there is abundant literature on feed and water restriction to adult chickens especially growing pullets (Pokniak *et al.*, 1986; Leeson and Summers, 1985; Plavnik *et al.*, 1986).

Provision of feed, water and supplementary heat is an essential in raising young chicks (Banerjee, 1976; North, 1978; Oluyemi and Roberts, 1979). Card (1962) reported that the maximum growth response from chicks for the first nine days was realised at the average room temperature of 32.8°C. The objective of this study was to determine the effect of

deprivation of chicks from feed, water and/or brooder heat on their survival.

### MATERIALS AND METHODS

Two hundred and forty newly hatched broiler, cockerel and pullet chicks were shared equally into pens. Each pen was partitioned into twelve floor-bedded cubicles of 1m x 0.5m to accommodate 10 chicks each. One pen was heated while the other was not, so as to contract the atmospheric brooding condition. A hygrometer was installed in each pen and read thrice daily, morning, afternoon and evening to monitor the room temperature and humidity.

The chicks in each pen were deprived of either feed, drinking water or both. The control groups received the three essentials. Chicks deprived of feed and water in the unheated pen were left in the chicks box. This was to simulate a situation where the chicks were either not collected from the hatchery or were only received on the farm but not settled in the brooding apartment. A 3x4x2 factorial design was adopted. The chicks, identified by shank tagging were individually weighed once daily. The trial lasted eight days when the batch of the starved chicks died. Data collected were statistically analysed according to Snedecor and Cochran (1976).

### RESULTS AND DISCUSSION

There was no significant difference ( $P > 0.05$ ) between the broiler, cockerel and pullet chicks in their potential to survive under the various stressful conditions. With mortality of 11.7% for cockerel chicks on day 8, the last dying day compared to 6.7% for pullet and 1.7% for broiler, cockerel chicks appear to be the most resistant to starvation stresses, followed by pullets and lastly broilers. Provision of supplementary heat for brooding

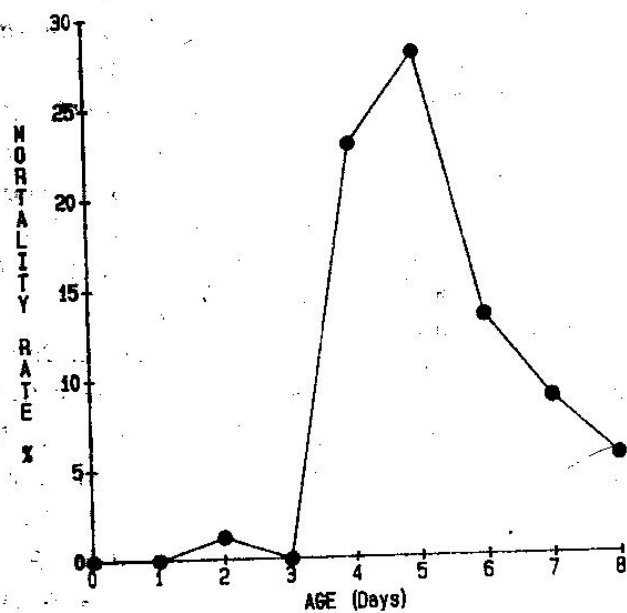


Fig 1: Effect of age on chick survival

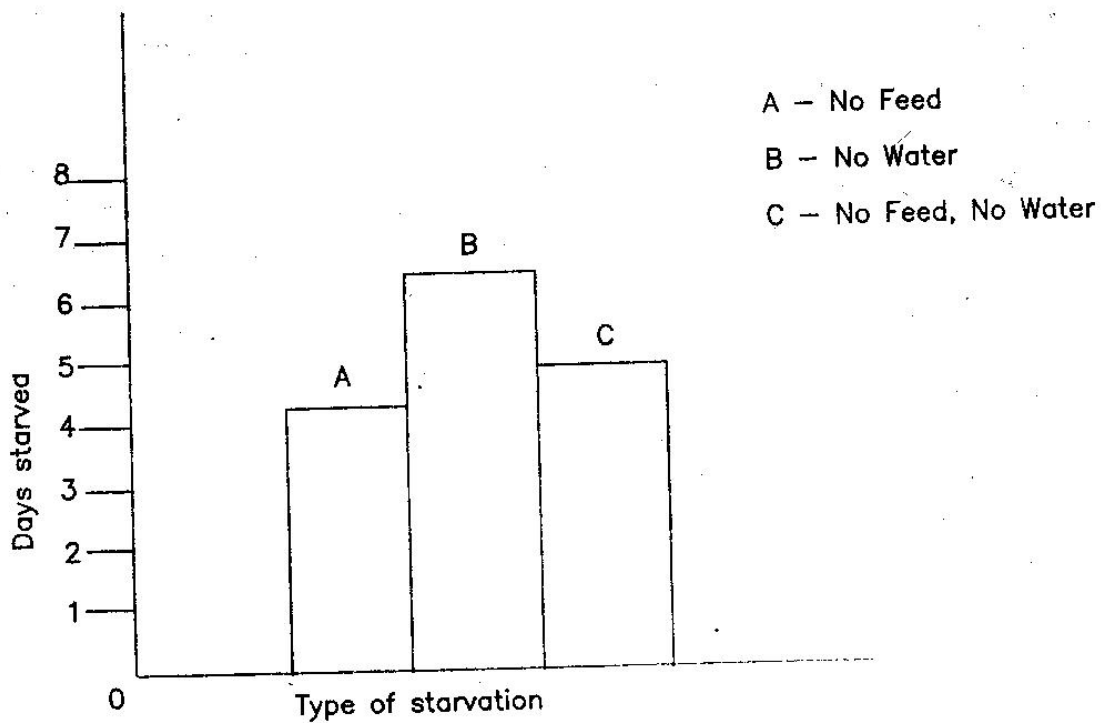


Fig. 2: Effect of type of starvation on the survival of chicks

## **SURVIVAL OF STRESSED CHICKS**

did not confer any significant ( $P > 0.05$ ) advantage on the ability of the chicks to survive under various treatments. However, when provided with only feed (minus water) all the different types of chicks raised under supplementary heat survived averagely a day longer than those without heat. This survival if feed was provided.

Age of chicks significantly ( $P > 0.05$ ) influenced chicks survival. A significant ( $P < 0.05$ ) mortality rate was recorded on the 4th and 5th days (Fig.1). All chicks virtually survived the first three days. This result suggests that most chicks will survive without feed water for three days, *Ceteris paribus*. The nature of starvation significantly ( $P < 0.05$ ) affected chick survival. Chick receiving feed but deprived of water averagely survived longest (Fig.2). This result is in agreement with the report of Laseinde (1991) on broiler chicks. Though feed and water are important for metabolism, chicks, provided feed only derived some energy from the feed opposed to those on only water which were able to survive significantly longer than the later. This also explains why there was no significant difference ( $P > 0.05$ ) in survival potential between chicks deprived of both feed and water.

### **REFERENCES**

- BANERJEE, G.C. (1976). A textbook of animal husbandry. Oxford and IBH Pub.co. Calcutta. pp. 692-694.
- CALABOTTA, D.F., J.A. CHERRY, P.B. SWIEGEL and D.E. JONES (1985). Lipogenesis and lipolysis in feed and fasted chicks from high and low body weight lines. Poultry production, 9th Ed. Lea and Febiger, Philadelphia. pp. 135-138.
- LASEINDE, E.A.O (1991). Experimental starvation of broilers. 1. Effect on survival, body weight changes and general observation. J. Anim. Prod. Res. 11 (1): 127-139.
- LEESON, S. and J.D. SUMMERS (1985). Effect of cage versus floor rearing and skip-a-day versus everyday feed restriction on performance of dwarf broiler breeders and their Offsprings. Poultry Sci. 64: 1742-1749.
- NORTH, M.O. (1978). Commercial chicken production manual. 2nd Ed. AVI Pub. Co. Inc. West-port Connecticut. pp. 183-196.
- OLUYEMI, J.A. and F.A. ROBERTS (1979). Poultry production in warm wet climates. Macmillian Press Ltd. London. pp. 79-83.
- PLAVNIK, I., J.P. MCMURTRY and ROSEBROUGH (1986). Effects of early feed restriction in broilers. 1. Growth performance and carcass composition. Growth 50: 68-76.
- POKNIAK, A.J., M.S. AVARIA and S.B. CORNEIO (1984). Productive performance and changes in carcass composition of broilers under an initial energy-protein restriction and subsequent refeeding. Nutrition Reports International 30: 1377-1383.
- SNEDECOR, G.W. and W.G. COCHRAN (1976). Statistical methods. 6th Ed. Iowa State Univ. Press. Ames, Iowa, USA.
- VERKAMP, H.C. (1986). Fasting and yield of broilers. Poultry Sci. 65: 1299-1304.