Biological and Economic Efficiency of Artificial Incubation and Brooding for Indigenous Chicken Production system in Kilifi County, Kenya

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Abstract

Indigenous chicken (IC) (*Gallus domesticus*) are among the domesticated avian species kept for food, fiber (feathers), sport recreation, cultural function besides manure. IC has co-existed with mankind among the various domesticated livestock species, for a long history, they are extensively distributed and kept more abundantly than any other livestock species. The IC plays a vital role in the households’ livelihoods and contributes significantly to food security and income generation of the rural communities as chicken products have negligible cultural and religious taboos. The productivity of the IC is however low such that consistent supply of indigenous Chicken meat has been lacking in the poultry industry with farmers unable to keep up with the demands of traders in the hotel industry. The commonly used technologies for productivity improvement are in increased production scale, improved nutrition, disease control, and breeding strategies. These production techniques are either not fully employed by the producers or have reached the upper limit; hence the demand for IC and products still far outstrip the supply. The current form of IC production system depends on the birds to carry out all productive and reproductive functions of egg laying, egg incubation and chick brooding until weaning for them to naturally start the cycle again. Relieving hens from incubation and brooding could release them to start the laying cycle early hence improve on the number of clutches and eggs laid per year; while artificial brooding may also increase chick survival by reducing exposure of chicks to predators and harmful weather. However the impact of artificial incubation and brooding in IC production is not well known. This study aims at investigating the effectiveness of artificial incubation and brooding on the biological and economic efficiency of the IC Production system. The study will be carried out on station at the Pwani University farm. The data will be analyzed using General Linear Model (GLM) in Statistical Analysis Software (SAS) for the analysis of variance (ANOVA). The inference will be concluded by preplanned orthogonal contrasting and mean separation by Tukey’s Honestly Significant Difference (HSD).