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ABSTRACT BOOK

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Effect of crate type on egg quality and shelf life of eggs from ISA-brown layers reared on the deep litter system

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Abstract

Implications: Measurement of egg quality is important for direct consumption or setting in the breeder industry. Poor quality eggs from storage are a great source of concern in microbial contamination and hatchability of the eggs. Eggs are collected in crates and stored before consumption or setting in the hatcheries. Information on comparative properties of eggs stored in different crate types are few, which this study has sought to address.

Introduction: Poultry is for most Nigerians, can be depended upon to ameliorate the deficit in protein supply of the diet in the growing population as an egg is reported to provide up to 6g of protein while the egg-white protein has a biological value of 100; the highest biological value of any single protein ever reported. An egg can easily get spoilt and quickly lose its quality if not properly handled. This is because egg shells permits passage of air and fluid, hence moisture and carbon dioxide could escape through the shell under poor storage conditions. There has been growing research interest in studying egg quality during storage which forms the basis for the study in seeking the effect of paper crates, glass crates and plastic crates on egg quality over different storage periods.

Materials and methods: A total of 180 freshly laid eggs were used for the study and the eggs were randomly and equally allotted to 3 treatments of the crate types (paper, glass and plastic) in a Completely Randomized Design (CRD) with each treatment having 60 eggs. Six eggs were selected at random from each egg crate type (paper, glass and plastic). In each crate type, 6 eggs were picked on a weekly interval of up to 8 weeks (144 eggs) for the determination of internal and external parameters such as the Haugh Unit (HU) and Yolk Index (YI) were measured.

Results: The results obtained showed that at week three of egg storage, egg quality indices were significantly ($P < 0.05$) affected by storage duration and crate types. Based on grading of stored eggs using HU as a standard for egg acceptability to the consumer, eggs stored using paper crate had grade A (78%), while eggs stored in a plastic crate (68.7%) and eggs in a glass crate (63.2%) which were both grade B. Whereas the YI was not affected significantly ($P > 0.05$) by storage duration in the different crate types.

Conclusion: Based on the observations of results from this study, it is therefore recommended that eggs should be stored in paper crates. This is because both the internal and external quality parameters were better preserved by using the paper crate and this also resulted in the maintenance of grade A egg quality even at three weeks of storage.