

Feed Grade Ash from Empty Palm Bunch and its Effects on Layer Performance

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Abstract

The study was undertaken to produce a palm bunch ash containing low concentration of potassium and to determine its effects on layer performance. Empty palm bunches were collected from a palm oil mill, cleaned, dried, and ashed. Ash was further soaked and filtered to obtain a low potassium palm bunch ash. Ash was included in the layer diets at 0.0kg (T1 control), 0.10kg (T2), 0.15kg (T3) and 0.20kg (T4) per 100kg of feed in partial replacement for common salt (NaCl). Proximate and mineral concentrations of the experimental diets were determined. The layer feeding trial was carried out with 240 Isa brown layer birds that were 16 weeks into lay. They were divided into four groups of 60 birds and each, replicated three times in a completely randomized design (CRD), with 20 birds per replicate, and fed the diets for 12 weeks. Laying performance responses were assessed. Ash supplemented layer diets recorded significantly higher ($p>0.05$) Cu, and Zn values than the control diets while the Na and Mg values decreased. The dietary electrolyte balance (DEB) values were higher than the recommended. The T2 and T3 groups recorded superior % hen day production (HDP) and egg shell quality, with the % improvements in HDP being 11.71 and 11.97 respectively. Again, the SFA supplementation resulted in 20.96 and 15.41% increase in the profit from egg sales over the control value. Supplementation of layer diets with treated palm bunch ash at the 0.1 and 0.15 kg/100kg diet level are recommended for improved laying and growth performance

Keywords: layers, Palm Bunch Ash, Minerals, and Poultry Feed

1.0 INTRODUCTION

Empty palm bunch wastes are readily available agro residues that have found limited application in south eastern, Nigeria. They are discarded as waste material and constitute environmental nuisance at several palm oil processing locations (Isreal and Akpan, 2016). Limited quantities are used as manure in farms, while on combustion the ash has been used to produce local soaps and as edible ash.

Since palm bunch ash like most plant ashes has been shown to contain very high levels potassium salts (Okonkwo *et al.*, 2018a), which are reported to negatively influence feed intake at high inclusion level in the diets of chicken, production of low potassium palm bunch ash may result in a better mineral supplement that would have better effects on the performance and physiology of layers. This will help to solve the problem of reduced feed intake associated with higher inclusion levels of plant ash in broiler and pullet diets (Nwogu, 2013; Ohanaka, 2016) and also the poor oviductal and egg shell development in layers (Nwogu, 2013). This problem has been traced to the high dietary electrolyte balance values of diets supplemented with plant ash due to high levels of potassium, sodium and chlorine in such diets (Ohanaka, 2016; Unamba – Opara *et al.*, 2017). It is therefore believed that the reduction of these minerals in the plant ash processed for livestock feeding will yield better results. The study was undertaken to utilize a feed – grade palm bunch ash and to determine its performance effects on laying hens.

Unamba- Oparah, I. C., Nwaiwu, E. F., Unamba-Oparah C., Achonwa, C. C, Nwogu, C. M., Okoli, I. C. (2017). Electrolyte Balance (dEB) status of commercial poultry feeds sold in the hot humid tropical environment of Owerri, Southeastern Nigeria. *Nature and Science*, 15(3):1-7.