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Sustainability of the Portuguese autochthonous hens breeds: characterization of the productive system (eggs)

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Abstract

Background: The conservation of animal genetic resources represents an opportunity for the promotion of local genetic resources with benefits for marginal areas that have economic, cultural, social, and environmental potential, scientific use and that contribute to the sustainable preservation of biodiversity [1, 2]. In Portugal, four autochthonous chicken breeds have been recognized as being at risk of extinction, bred under traditional production systems, as dual-purpose animals for meat and eggs [2,3]. Consumer concern regarding the sustainability of production and animal welfare has strongly increased the demand for eggs and meat that are produced through alternative and extensive farming methods [4,5]. **Objective:** The aim of this study was to characterize the yield performance of indigenous Portuguese hens and evaluate the physicochemical composition of the eggs. **Methods:** Records were taken from hens bred in AMIBA farm with several flocks, sorted by breed. The production cycle was controlled during 2 years. The protein and mineral contents of the yolk and albumen in 240 eggs, 60 per breed, were estimated; protein content was determined according to Kjeldahl method (ISO 937:1978), while the mineral composition (P, K, Ca, Mg, Na, Fe, and Zn) was determined in freeze-dried samples [6]. **Results:** The four native Portuguese breeds perform well under extensive systems, with Pedrês Portuguesa appearing to be the most efficient laying breed. Productivity is significantly influenced by the hens' age and season, in tandem with the rearing system. The physicochemical composition and mineral content differ between breeds and egg constituents, with a higher protein content compared to a commercial genotype. K, Ca, Fe, and Zn contents were superior in native breeds when compared to the commercial genotype. **Conclusions:** Local breeds offer opportunities to adapt livestock to low-input environments and the characterization of the quality traits shows a strong contribute to future forms of sustainable poultry production.

Keywords: sustainability; productivity; physicochemical composition; autochthonous breeds

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