

22. Characterization of poultry production systems and associated physical egg quality characteristics in Tigania west Meru County

Nancy Nganga Ikiara¹, Martin Mbare¹, Timothy Mutwiri Kithinji¹ and John Thuita^{1,*}

¹ Department of Animal Science, Meru University of Science and Technology

*Corresponding author email: jthuita@must.ac.ke

Subtheme: Agriculture - Sustainable Agro-ecological practices for climate resilience

Abstract

Poultry farming is a significant component of modern-day agriculture and contributes to overall food security through production of eggs and white meat. Furthermore, although the livestock subsector contributes 18% of global greenhouse gas emissions, poultry production leaves a comparatively smaller carbon footprint per unit of product compared to ruminant production. Contrary to the prevailing situation in Meru County, therefore, poultry production needs to play a bigger role in efforts to enhance food security. The purpose of this research was to characterize poultry production in Tigania West sub-County, with respect to adoption levels, farmer demographics, land sizes and physical egg quality parameters associated with different production systems. A total of 83 farmers were interviewed using a structured questionnaire. The questionnaire response rate was 94% (78/83). Among the respondents, 53/78 (67.9%) had poultry in their farms. Out of the 53 poultry farmers, 81.1% (43/53) were practicing the free-range production system, 17% (9/53) semi-intensive production system and only 2% (1/53) were practicing the intensive production system. Not surprisingly therefore, local breeds and improved Kienyeji chicken were the most common breeds kept in the small holder farms, a majority (95%) of which were less than 5 acres in size. Physical egg defects included broken shells which were observed in 7.5% and 9.3% of eggs in the free-range and semi-intensive production systems, respectively. The most prevalent egg shell defect was soiling, which was detected in 80.7% (75/93) of the eggs collected from the free-range production system. Eggs collected from the intensive and semi-intensive systems were not soiled. Eggs shape index was 76.5, 73.4 and 72.1% for the intensive, semi-intensive and free-range production systems respectively. The Tigania west poultry sector is therefore characterized by high adoption levels, particularly of the low risk, low input and eventually low returns free-range production system.

Keywords: Poultry, production system, physical egg characteristics, shell defects, Tigania