

Phenotypic diversity of two Ethiopian village chicken ecotypes

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Introduction

The non-descript village chickens are ubiquitous across the sub-Saharan Africa region. They display a vast array of plumages and morphologies within and across populations. These are the consequences of complex natural and human selection pressures and their interactions on *de novo* mutations during the evolutionary history of the domestic fowl.

Here we assessed differences in phenotype frequencies between two Ethiopian chicken ecotypes (Horro and Jarso) and examined the possible impact of human selection on Mendelian traits.

Materials and methods

Photographs from 151 cocks (84 in Horro and 67 in Jarso) and 247 hens (116 in Horro and 131 in Jarso) were examined for the recording of phenotypes and farmer preferences were assessed through individual interviews (100 farmers at each location).

Results

Table 1. Phenotypic frequency differences

Trait	Horro Number (%)	Jarso Number (%)	χ^2
Single comb*	15 (17.9)	27 (40.3)	8.3448**
Crest	47 (23.5)	4 (2.0)	18.6154***
Yellow shank	103 (69.6)	82 (55.0)	1.8000
Red earlobe	102 (52.8)	58 (29.3)	7.0244**

*Recorded in cocks only; ** $P < 0.01$; *** $P < 0.0001$

Table 2. Farmers preferences for phenotypes

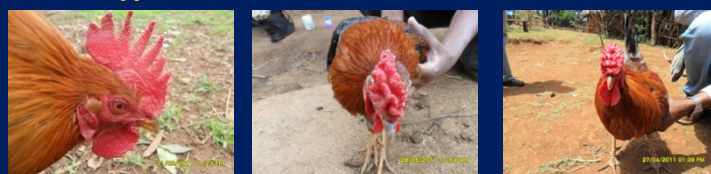
Preference	Horro Number (%)	Jarso Number (%)	χ^2
Single comb	4 (2.0)	8 (4.0)	0.6667
Red hen	74 (74.7)	73 (73.0)	0.0270
Red cock	81 (81.8)	84 (84.0)	0.0241
Yellow shank	94 (94)	94 (94)	0.0000

Conclusion: Farmers in both locations showed similar preferences to chicken phenotypes. Nearly, all farmers prefer yellow shank and this recessive trait is observed in more than half of the sampled chickens. On the contrary, the recessive single comb is not preferred by most of the farmers, however it was observed in a reasonably large number of cocks. Human selection is therefore at least partly shaping the phenotypic diversity of the two chicken ecotypes.

Plumage colour, pattern and crest



Comb types



Shank colour



Earlobe colour

