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## Implicit Prices of Goat Traits in Three Production Systems of Ethiopia: A Choice Model Approach

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### Abstract

Given the lack of data on costs and benefits associated with goat traits under smallholder conditions, an alternative way of determining economic values of traits is required to understand farmers' trait preferences in order to design sound breeding programs. The objective of this study was to determine economic values of goat traits in three production systems of Ethiopia. A choice experiment with 360 households was carried out in Abergele, Konso and Meta Robi districts of Ethiopia, representing arid agro-pastoral (AAP), semi-arid agro-pastoral (SAAP) and highland mixed crop-livestock (HMCL) systems, respectively. The study revealed that body size, libido and disease resistance were desired traits for breeding bucks. Farmers in the HMCL were willing to pay 768 Birr (USD 40) for a breeding buck with an active libido, which was 401 Birr (USD 21) and 630 Birr (USD 33) more than farmers in the AAP and SAAP systems, respectively. Farmers in the AAP system were willing to pay 3.5 and 3.7 times more than farmers in the HMCL and SAAP, respectively, for breeding bucks with a higher disease resistance (sick one time per year) compared to those with a relatively low disease resistance (sick three times). Milk yield was highly valued in the AAP system, but it was less important in the SAAP and HMCL systems. Farmers in the HMCL system were willing to pay 736 Birr (USD 39) more than farmers in the SAAP system for large body sized does, while this trait was not a significant criteria for valuing breeding does in the AAP system. The results suggest that farmers living in a harsh environment represented by the AAP system valued functional traits such as disease resistance more than performance traits, except for milk yield. Cultural habits of goat milk consumption also affected economic values of goat traits. In low input agricultural systems, choice models could be used as an alternative tool to determine the relative economic weight of traits for designing breeding schemes that are in line with site specific farmers' trait preferences.

**Keywords:** Choice experiment, Ethiopia, goats, implicit prices, production systems, traits