

## Approach to phenotypic characterization of goat population of Morocco

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In order to inventory and catalog the Moroccan AnGR, goat populations have been characterized phenotypically to improve their management. We obtained 11 zoometric variables including morphological (height at wither) and phenoptical (i.e., horn length), 5 combined indices and 8 external qualitative characters in a total of 145 females and 38 males from 61 herds. We calculated descriptive statistics for quantitative variables and frequencies for qualitative, considering the effect of sex and geographical location. We established three zones based on geo-climatic characteristics and environmental influences. An ANOVA and chi-squared likelihood tests were carried out.

The quantitative variables show the low sexual dimorphism exists in the Moroccan goat populations. The global variability is considerably higher among zones (coefficient of variation >10%) in both sexes, obtaining significant differences ( $p < 0.05$ ) between the geographic areas in 3 measures in males and 6 in females. Two indices presented significant differences in females.

Similarly, external qualitative characteristics differ significantly between regions for all parameters studied except the type of hair (mostly long) and main color (dominant black) in both sexes. The phenotypic variability is particularly evident in the coat color; we found 11 variations, although all groups predominantly black (25%) and brown (25%). The profile is majority straight (>80%). This differentiation seems to be linked to the characters of greater adaptive value (i.e., ears form and hair length).

These results suggest that Moroccan goat populations, still uncharacterized, exhibit phenotypic variables that differ by location, may be due to environmental adaptations or the variety of animal origins.

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