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## Indigenous Knowledge in Animal Management: Essential for Designing Community Based Sheep Breeding Programs

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### Abstract

The International Centre for Agricultural Research in the Dry Areas (ICARDA), the International Livestock Research Institute (ILRI) and University of Natural Resources and Applied Life Sciences Vienna (BOKU) in partnership with the national agricultural research systems in Ethiopia are implementing community-based breeding strategies for four local breeds (Afar, Bonga, Horro and Menz) in four sites. Understanding of local knowledge and practices of communities in animal management is of paramount importance for success of community-based breeding programs. Workshops were held with the project communities to learn their animal management practices (selection of rams and ewes, ram sharing, grazing management etc.). Breeding management skills were studied by conducting heritability and genetic correlation exercises. For this purpose, the most important animal traits for the different production systems were identified from a systems study. Overall, 9 to 10 phenotypic, production, and reproduction traits were used in the form of drawings and/or verbal explanations. All possible pair-wise combinations of traits were presented to the communities to express their impressions via voting. For evaluating heritability, the communities were asked which trait of a pair is relatively more heritable than the other. For the correlation exercise, they were asked to estimate the magnitude (high, low, and none) of relationship between the traits in each pair. The results indicate that farmers/pastoralists have excellent skills in sheep management. Mating is generally uncontrolled; however, the farmers have a tradition of ram exchange. All farmers/pastoralists exercise ewe and ram selection. The selection is based on phenotypic appearance and recalled pedigree. Farmers/pastoralists' knowledge on heritability of traits and genetic correlations between traits more or less concurs with scientific evidence in literature. For example, qualitative traits (like colour) were judged highly heritable followed by production traits. Knowledge of correlations is used for indirect selection when the target traits are either impossible to assess on the live animal or are sex-limited. Indigenous knowledge and existing practices in the communities, developed through years of practical experience, provide an excellent base for the design of sheep breeding programs.

**Keywords:** Community based breeding, indigenous knowledge, sheep