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**Organisation of Sustainable Breeding Schemes for Smallholder  
Dairy Farmers in the Highlands of Ethiopia**

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**Abstract**

Development projects have been carried out to improve dairy cattle productivity in the Ethiopian highlands by introducing crossbred dairy cattle and by improved management. Farmers have become aware of the benefits from improved dairying: better income and nutrition. Thus, there is increasing demand for crossbred dairy cattle in the Ethiopian highlands. Crossbred dairy cattle have been produced mainly on government farms using local cows and imported semen. Heifers used to be distributed after confirmed pregnancy. Very recently upgraded bulls were also distributed for natural mating at village level. However, there is yet no active breeding programme for smallholder farmers that could sustain the dairy development efforts. The production and use of breeding bulls from on-farm performance tested cows could be an option for a sustainable breeding scheme under smallholder farmer conditions.

The objective of this work is to propose a sustainable breeding scheme based on a young sire programme in order to provide bull service for smallholder farmers in the Ethiopian highlands.

Ethiopian smallholder farmers are organised in peasant associations, the smallest administrative unit in rural Ethiopia. About 200 farmers form part of one peasant association, each of them keeping about two crossbred cows. A young sire breeding scheme is suggested as breeding scheme in order to improve and maintain the milk performance of the crossbred cows. To start such a programme bull dam candidates have to be identified by milk performance testing.

The mating service is supposed to be natural where one bull serves on average 40 cows. Setting a bull's useful life to be three years there is a need of about 4 bulls per peasant association and year. The number of bull dams needed per year is a function of the number of bulls needed per year, sex relation, survival rate, success of mating, pre-selection on morphologic criteria and period while using the cows as bull dams. Considering all these factors, about 11 bull dams per peasant association and year have to be provided. Milk performance testing in a reasonable extent has to be incorporated into the association's activities as well as vocational training for the farmers.

**Keywords:** Breeding scheme, dairy, Ethiopia, small holder