

Scaling sheep and goat community-based breeding in Ethiopia



INITIATIVE ON
Sustainable Animal
Productivity

Small ruminant value chain

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Outcome

The sheep and goat Community-Based Breeding Program (CBBP) was initiated in Ethiopia in 2009 as an alternative breeding approach for sheep and goats to the conventional nucleus and use of exotic breeds for crossing <https://hdl.handle.net/20.500.11766/10553> and <https://hdl.handle.net/20.500.11766/9696>. CBBP aims to improve the income and livelihood of sheep and goat producers, contributes to better market supply and food security, and provides a framework for genetic improvement that can be replicated elsewhere in and outside of Ethiopia. In CBBPs, communities and various partners play a significant part in the design and implementation of the breeding program's components, allowing for the exploitation and advancement of indigenous knowledge while ensuring community ownership. Evaluations have indicated that CBBPs and related innovations have led to significant genetic gains, an increase in animal sales volume, improved consumption of animal products, and enhanced household livelihoods (Haile et al., 2020; Kassie et al., 2021).

The collaboration between the CGIAR [Sustainable Animal Productivity for Livelihoods, Nutrition, and Gender Inclusion](#) (SAPLING) initiative and the [International Center for Agricultural Research in the Dry Areas](#) (ICARDA) have facilitated the involvement of additional projects, such as the Accelerating the Impact of CGIAR Climate Research in Africa (AICCRA) and the World Bank's Livestock and Fisheries Sector Development Project (LFSDP). This partnership has enabled the engagement of various universities, research institutions, the Ministry of Agriculture, and non-governmental organizations in Ethiopia to support the scaling of Community-Based Breeding Programs (CBBPs). The scaling approach adopted in this initiative is based on the framework developed by Mueller et al. (2023). This framework identifies four key components: CBBPs, production units (PUs), finishers, and end markets (consumers). Within this framework, the primary role of livestock keepers in the CBBP breeder cooperative is to produce improved sires and deliver them to the production units. The CBBP serves as the hub for meticulous data collection, genetic evaluation, and sire certification. To participate in the production units, livestock keepers must organize themselves as producer cooperatives. They could purchase improved sires from CBBPs, which they can utilize to enhance the quality of their flocks and improve their overall production outcomes.

In Ethiopia, there are now more than 296 villages actively participating in the breeding program, comprising 155 in Community-Based Breeding Programs (CBBPs) and 141 in production units. Notably, since the inception of SAPLING in 2022, approximately 47% of these villages (73 CBBPs and all production site villages) have been established (Figure 1). The SAPLING initiative, conducted between 2022 and 2023 also witnessed a significant increase in household engagement within sheep and goat Community-Based Breeding Programs (CBBPs) across Ethiopia. By the end of 2023, the total number of participating households reached 24,665. Notably, a substantial proportion of 16,490 households (66.9%) joined the CBBPs during this period, indicating significant growth and widespread adoption of the breeding program. Considering an average household size of 5.5 individuals, the corresponding number of beneficiaries in these programs amounted to 135,658 (Table 1). Among these beneficiaries, an impressive figure of **90,694 individuals (assumed as 45,347 each of males and females) were newly included in the CBBPs during the years 2022 and 2023**. This highlights the program's success in reaching and positively impacting a wide range of individuals and households within the community.

The SAPLING initiative has also played a crucial role in facilitating scaling by establishing various clusters. So far, four sheep clusters have been successfully created as part of this effort. These clusters are Washera Wollo (WaWo), which focuses on the Washera and Wollo sheep breed, Menz Shewa, which focuses on the Menz sheep breed, Bongacho, which focuses on the Bonga sheep breed, and Debub Maekelawi, which focuses on small ruminants in Central and South Ethiopia Regional states (Figure 2). The formation of these clusters brings together partners within each cluster, fostering collaboration and mobilization of resources to support the expansion of CBBPs with a focus on breed-level improvement.

Partners

Various institutions have actively participated in scaling community-based breeding programs (CBBPs). Ethiopian research centers and universities have engaged in co-funding initiatives to strengthen and establish CBBP villages within their respective mandate areas. Additionally, they play a crucial role in supporting breeder cooperatives by assisting in improved and certified breeding sire production. The Federal Ministry of Agriculture, along with the Regional Bureaus of Agriculture at various levels, District-level Cooperative Offices, and NGOs, help communities engaged in CBBPs and production units (PUs) through different capacity development activities. The SAPLING initiative, ICARDA, AICCRA, and LFSDP have also played significant roles in various capacity development efforts. These include program design, technical capacity development for researchers, communities, extension experts, and development agents, as well as providing essential inputs such as starter breeding sires, animal identification and weighing equipment, and data capture equipment. Since 2022, a total of 58 CBBPs have been supported by universities, allocating a total of 723,461 USD towards their implementation and development. <https://cgspace.cgiar.org/items/32903961-ed4b-43f5-9978-3484ec9dbcf5> <https://hdl.handle.net/10568/126572>. Donors including WB, IFAD, and USDA provided funding over the years for program implementation.

Why did we do this research?

Livestock production is an important component of smallholder livelihoods in sub-Saharan Africa (Wodajo et al., 2020). Ethiopia has a variety of agroecological zones and is blessed with enormous agricultural resources. It is home to one of the largest livestock populations in Africa, which has contributed to the livelihood and income of many communities. In sub-Saharan Africa, among the livestock population, small ruminants are important in ensuring food security and alleviating poverty, especially for the rural poor and women (Oluwatayo and Oluwatayo, 2012).

Furthermore, small ruminants are an invaluable source of nutrition and livelihood for millions of poor people and play a central role in the cultural identities of many sub-Saharan communities. Global demand for animal-based foods is expected to double by 2050 due to the growing human population, urbanization, economic growth, and increasing income (Rojas-downing et al., 2017). Thus, significant productivity improvements are needed to meet growing food security and developments.

The previous strategy aimed at enhancing small ruminant productivity in Ethiopia relied on a centralized nucleus scheme, primarily managed in government-owned farms, with minimal farmer involvement. This approach also involved the introduction of 'improved' breeds from developed countries for crossbreeding.

Unfortunately, these efforts did not yield the desired outcomes. Several factors contributed to this lack of success, including high operational costs, failure to address farmers' specific objectives, challenges related to the adaptation of exotic animals, and disease outbreaks associated with confinement practices (Getachew et al 2016).

An alternative approach known as Community-Based Breeding Programs (CBBPs) was introduced in Ethiopia in 2009 through a collaborative effort involving ILRI- ICARDA-BOKU. This new approach proved successful at the pilot level (Haile et al., 2020; Van Tassell et al., 2023), demonstrating its potential to improve small ruminant productivity. Nevertheless, achieving population-level improvement and expanding the benefits to a wider community is of utmost importance. Scaling up the CBBP approach is crucial to realizing these goals and ensuring broader community participation and economic benefit.

Evidence

As evidence of the program's outcomes, detailed information regarding the breeding program villages, including their names, geographic locations, the number of participating households, and the number of animals, have been consistently provided by research partners, universities, and extension services. To ensure

standardized data collection, an Excel format was shared with our research and university partners (attached as an annexe). Regular field visits and evaluations conducted by the ICARDA team serve to verify the accuracy of the collected data.

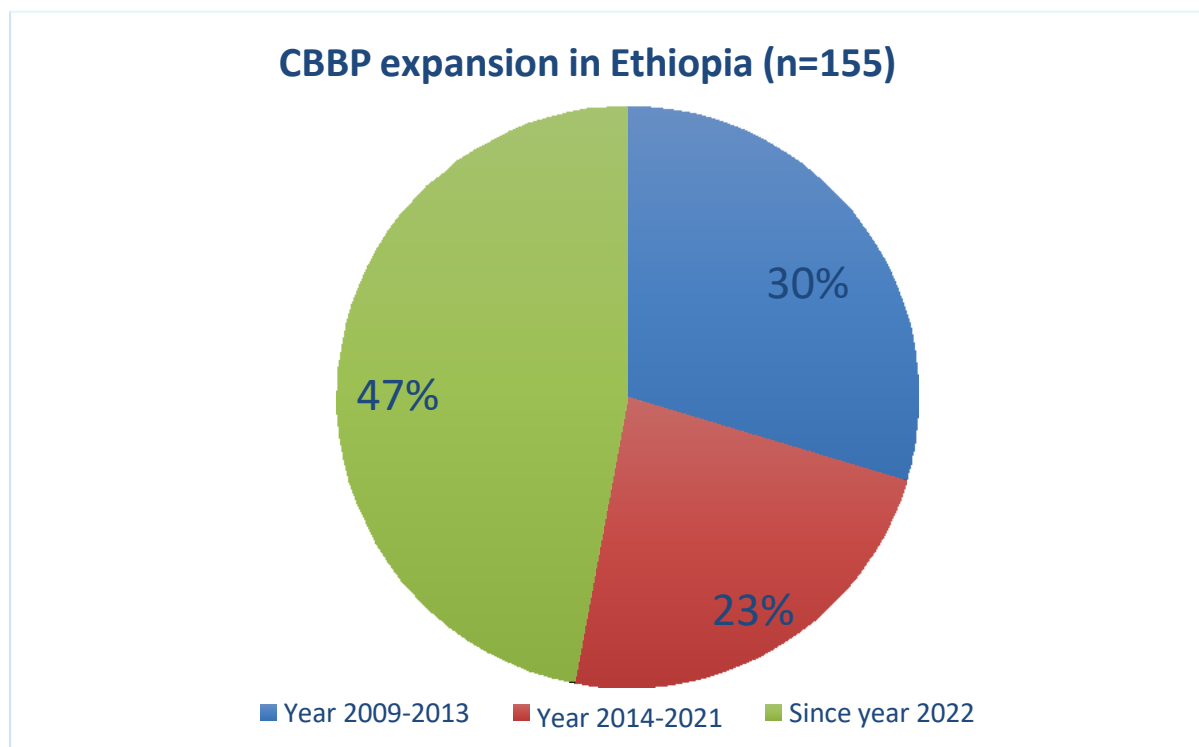


Figure 1. The expansion of the community-based breeding program for sheep and goats in Ethiopia.

Table 1. Number of households and beneficiaries involved in community-based breeding programs.

Year of establishment	Village type	Number of villages	Number of households	Number of beneficiaries
Year 2009-2013	CBBP	46	4586	25223
Year 2014-2021	CBBP	36	3589	19740
Since the year 2022	CBBP	73	7278	40028
Since the year 2023	PU	141	9212	50666
Total		296	24665	135658

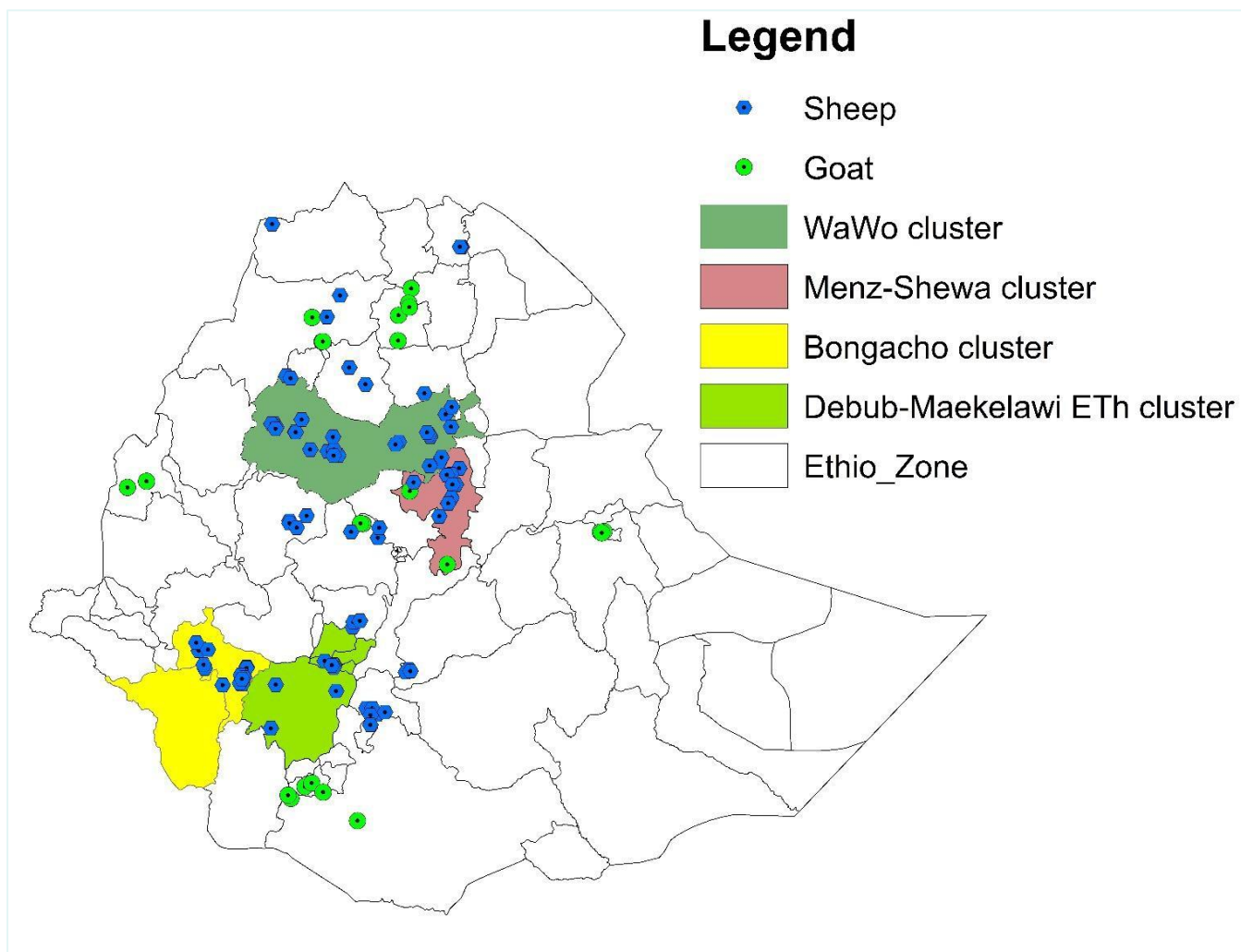


Figure 2. Map showing the distribution of sheep and goat community-based breeding programs in Ethiopia.

Next steps

- Further strengthening and establishment of Community-Based Breeding Programs (CBBPs) and production unit villages.
- Establishing efficient linkages between CBBPs and production units to ensure smooth collaboration and sustainability of the program.
- Continuously enhancing the capacity of institutions, researchers, extension experts, development agents, and farmers involved in the program.
- The clustering approach will be further strengthened, and additional clusters will be established to effectively mobilize resources and promote active engagement from partners.

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