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Transforming the traditional subsistence-based smallholder poultry production system to a commercial-oriented and sustainable production system in the Global South: Tropical Poultry Genetic Solutions (TPGS) experience

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ABSTRACT:

Subsistence-driven, low-input, and low-output production systems predominantly characterize developing countries' smallholder poultry production in the Global South. Farmers usually keep very few indigenous/local poultry species, usually less than 50, with limited supplementary feeds and poor health and biosecurity practices. Producers primarily focus on producing eggs and meat for home consumption or selling surplus products to generate marginal incomes. Farmers usually sell surplus products directly to local consumers or through local markets or vendors. Transitioning these systems towards market orientation and enhanced productivity demands context-specific and integrated approaches that address key challenges and improve the competitiveness of the value chain. As part of this effort, since 2014, ILRI has been implementing various interventions in Sub-Saharan Africa and Southeast Asia. The critical intervention includes identifying, sourcing, testing, and evaluating the performance of tropically adapted improved breeds; value chain development, including developing context-specific business models for multiplication and delivery of farmer-preferred breeds and allied inputs; promoting informed consumption of poultry products; indigenous breed improvement; and promoting platforms and policies. ILRI has sourced, tested, and evaluated more than 21 different tropically adapted improved chicken breeds in 7 countries and has been running more than 4 breed improvement programs in different countries. Some of the tested chickens' breeds showed significant productivity gains (200-300% in body weight and 160-200% in eggs) compared with existing household chickens. Farmers showed a higher preference for introduced breeds (more than 90%) over existing chickens. The approach adopted by ILRI led to a significant reduction in chicken morality and the creation of additional jobs along the value chain. Unlike traditional production

practices, farmers could access any number of chicks for either eggs or meat production based on market demand. Preliminary assessments indicate that the integrated interventions led to the broader adoption of introduced farmer- preferred chicken breeds and significant economic and social gains from adopting these breeds.

KEYWORDS: local poultry, livestock management, genetic diversity, characterization, improvement conservation, suggestion.

BIOGRAPHY: Tadelle Dessie is a principal scientist at ILRI and adjunct professor in Animal breeding and genetics at the Bahir Dar University, Ethiopia. He has more than 30 years of experience in the field with a long track record of research on poultry and livestock breeding and genetics. As a project leader/PI of DAGRIS, ACGG, AsCGG, and TPGS led the design and implementation of the projects. He joined ILRI in 2004, and he is currently a Principal Scientist and a member of the Global Livestock Genetics (LiveGene) program at the International Livestock Research Institute (ILRI). His publication and project management record demonstrates his ability to undertake, plan and manage multidisciplinary research in livestock genetics and breeding research and development. He is responsible for coordinating the design and implementation of project activities in collaboration with partners and project reporting. He supervised and co-supervised more than 30 Ph.D. students. In consultation with partners, the PL is responsible for researching and providing alternative approaches. He is also responsible for designing and developing several chicken breeds in Africa, leading the sourcing of tropically adapted chicken lines, and developing material transfer agreements between owners of the chicken lines and ILRI. All the project team members from different geographies report to him.