

Feed the Future - USDA Livestock Improvement Project and the African Goat Improvement Network (AGIN)

Fish and livestock are critical to communities, livelihoods, nutritional status, and economic development. Globally, the livestock sector employs 1.3 billion people and contributes up to 50% of global agricultural GDP, and animal protein intake by children has been linked to improved cognitive development. By 2025, global meat and animal protein demand is expected to grow by almost 40%. As part of the U.S. government's global hunger and food security initiative, Feed the Future, USDA is building collaborative scientific partnerships with over 30 organizations and growing, that will help U.S. and African goat producers enhance goat breeding and productivity.

AGIN - A Different Approach to Sustainable Livestock Improvement

The African Goat Improvement Network (AGIN) is a product of the USAID Feed the Future (FtF) - USDA Livestock Improvement Project, and is deploying a unique, three-pronged approach to livestock improvement in the developing world. It is focused on long-term, sustainable solutions by bringing together classical breeding programs and animal husbandry techniques, while also making state of the art technology more accessible to African small holders, researchers, and government officials concerned with animal genetic improvement and conservation. The third feature of the AGIN approach, is to integrate opportunities for capacity building throughout the program at all levels of implementation, from farmers, to students, to researchers, and government and policy officials. The AGIN brings together the top experts working in African developing communities and directly engaging farmers, as well as those working in animal genomics and genomics tools for genetic improvement and conservation, and experts in development programs and policy.

Integration of Community Based Breeding Programs, Genetics, and Networking and Capacity Building

The FtF- USDA Livestock Improvement Project is currently funding eight Community Based Breeding Programs (CBBP), four in Malawi and four in Uganda, to engage small holder farmers directly. These communities are learning to develop their own goat breeding objectives, and to track their desired traits for farmer led breeding programs to meet their needs. AGIN is also actively supporting other African countries in the network who desire to set up CBBPs in their own countries, through information and resource development, sharing, and technical support. At the same time, AGIN partner researchers are working to identify unique genes in each population that meet farmer objectives, and to facilitate development of genetic tools and conservation plans. The Livestock Project with the AGIN partners, have so far collected and shared goat DNA and performance measures (i.e. milk

yield, parasite resistance, growth rate, body size and more) from more than 20 distinct goat populations from Africa, the United States, and other regions. African graduate students are taking lead roles in implementing and analyzing the CBBPs in Malawi and Uganda, and resources and scientific exchanges for researchers to AGIN labs for technical training, and data and equipment sharing for genetic analyses are ongoing.

Resource Sharing and Multi-level Training

To facilitate and maintain discussion, a new AGIN listserv was established with 54 inaugural members in March 2016. Soon to be launched and made publically available, is an online resource site with recommended resources by and for all AGIN partners. Looking forward, technical workshops or short courses for AGIN participants on all levels (farmers, graduate students, researchers, and policy makers) were discussed at the fourth AGIN ([AGIN IV](#)) meeting, sponsored by the FtF-USDA Livestock Improvement Project, and hosted February 22-24, 2016 by the Food and Agriculture Organization (FAO) of the United Nations in Rome Italy. Implementation plans for these activities are currently being developed by the AGIN partners.

So far, as a result of AGIN partnering efforts coordinated by the FtF-USDA Livestock Improvement Project, over 4000 goats have been sampled from over 20 countries, and over 2300 having their genotypes determined. Of these, 1393 have been shared with an AGIN member, the [ADAPMap Database](#), which is an International effort to improve global coordination among otherwise independent projects for genotyping, re-sequencing and phenotyping of goat breeds. This ongoing effort has made the data from this project available to the broader, global research community.

[Click here to see a list of the 38 current African Goat Improvement Network \(AGIN\) partners.](#)

Sustainability: The AGIN Approach for Livestock Improvement

Considering how varied goat populations differ in production systems, farmer breeding objectives, and performance traits like milk yield and parasite resistance, this project aims to build a community breeding program approach that is robust for application in many settings. It will enable farmers to develop and implement their own breeding objectives to quickly breed healthier, more productive goats, while also providing African breeders, researchers, veterinarians, and policy makers the information, skills, and resources they need to identify and conserve critical African goat genetic resources, and in turn, to support the economies and communities dependent on these resources.

Coming Soon: AGIN Online Resources!

[AGIN Goat Stories on the Web](#)

Join AGIN!

You are welcome to join the African Goat Improvement Network (AGIN) by subscribing to our Listserv!

Participate in discussions and resource sharing on the AGIN, the Livestock Improvement Project, community based breeding programs (CBBP), and related work. Please complete the form below. You may unsubscribe at any time.