



Fig 1. Released fodder Oat (SRCPX80AB2596) (left) and Lablab (ILRI-11613) varieties in Ethiopia (EIAR). (right)

The challenge

- Ethiopia has the largest livestock population in Africa.
- Feed shortages, together with quantity and quality, are the main challenges.
- Milk and meat productivity of the animal is lower than the regional average for East Africa.
- Improving feed availability through varietal selection.
- More than **60 improved forage varieties** have been released so far for different agro-ecologies (e.g. Fig 1.) but cover less than 1% of the total annual feed supply.

Our innovative approach

- Avail high yielding, stress tolerant and nutritious forage crop varieties for the different agro-ecologies and farming systems of the country.
- Germplasm collection from diverse sources and selection for single (forage) or dual-purpose (food-feed) traits (Figs 2-4).
- Identify parent materials for genetic improvement through crossing for single or multiple traits



Fig 2. Forage sorghum variety "Guta" released through selection from Ethiopian collection



Fig 3. Sorghum variety "Melkam" released through breeding for food-feed trait is grown as a forage crop at high density



Fig 4. Sorghum variety "Chelenko" released for grain through selection from Ethiopian collection is grown as forage at high density



INITIATIVE ON
Accelerated Breeding

Exploring genetic variability among feed and food crops for accelerated improvement in biomass and nutritional quality traits in Ethiopia

- Most of the modern high-yield grain varieties of food and feed crops like sorghum are tolerant to multiple biotic and abiotic stresses
- Sorghum is an ideal crop for land-constrained farmers because it is a tall-growing annual crop that can accumulate substantial tons of biomass per unit of land over a short period of time.
- There is large genetic diversity among local collections making selections and breeding programs for single or multiple traits successful.
- Experiences show that farmers tend to adopt recommended crops like sorghum that have well-known multiple uses rather than the forage-only crops.

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Outcomes

- A section of the 10,000 Ethiopian sorghum collection have been characterized for forage biomass and nutritive value traits.
- Production management packages developed for grain varieties-previously released for use in forage production-have been validated, demonstrated and promoted to farmers across different districts through on-station training, benefitting **over 100 farmers and reaching over 500 farmers** through field days.
- The project **distributed over 15 quintal seeds** of improved varieties to farmers in seven districts.
- About **6000 farmers** are benefitting from the informal farmer to farmer learning.

Next steps

- **Plan:** Avail of more alternative varieties of dedicated forage type and dual-purpose through:
 - **For the forage type** - on introgression of the brown mid rib gene responsible for high digestibility of the local sorghum varieties.
 - **For the dual-purpose type** - introgression of stay green genes responsible for delayed leaf senescence.
- **Challenges:** Skilled manpower, facilities and poor linkage among plant breeders and animal nutritionists
- **Focus:** Mainstreaming breeding and selection criteria using multi-trait (food and feed) model in crop breeding programs.

Partners

