



Feed and forage development and scaling in the Ethiopian highlands

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Introduction

Availability of nutritionally rich feed resources is highly limited in the mixed crop-livestock farming systems. Increasing on-farm produced feeds by introducing well-adapted, good quality and high yielding fodder crops and efficient utilization practices are very critical to improve livestock productivity.

Method/Approaches

- Forage seed sourcing from known seed suppliers.
- Identification and elective engagement of volunteer farmers for R4D and scaling activities.
- Capacity building of farmers, extension experts and other local partners.
- Early, mid and end season performance evaluation.
- Data on germination, growth, biomass and seed production.
- Lab analysis for nutritional quality and on-farm animal response observations.
- Production and circulation of research products.
- Beneficiary tracking of the feed and forage scaling initiatives.

Results/Achievements

- High biomass yield (t DM ha⁻¹) of good nutritional quality obtained under farmers' fields and management: oat-vetch mixture (15±3.1); Lablab (3.4±0.75), vetch-desho intercropping (5.5±1.22), sweet lupine (2.9±0.89), alfalfa (15.3±4.55), and fodder beet (20.2±5.26).
- Potentials for use of *Phalaris gass* (*P. aquatica*) and *Brachiaria* (*B. Mutica* and hybrids) with NRM.
- Preliminary results showed considerable improvement on milk yield improvement as a result of supplementation: oat-vetch >50%; fodder beet supplementation up to 33%.
- A potential increase in income by more than 35% due to increased milk yield production.
- Scaling of oat-vetch and tree lucerne constitute the largest share in Africa RISING operational areas and beyond (Table 1).
- Local capacity strengthened through training of trainers, field days and visits, graduate student supports,
- Communication materials including posters, leaflets and factsheets produced; journal articles and blogs published.

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Key challenges and lessons

- Shortage of quality seeds of different forage species for scaling to cover wider areas and benefit more farmers.
- A need for further data acquisition and analysis to establish the impact of cultivated forages on the five SI domains.



Fodder beet tuber (left) and alfalfa, tree lucerne and other forage spp (right) on farmers fields.

Table 1. Beneficiary and area covered from scaling of feed and forage interventions in 2017 and 2018.

| | Male | Female | Total | Areas |
|--------|-------|--------|-------|-------|
| Region | HHs | HHs | HHs | (ha) |
| Amhara | 15183 | 1576 | 16759 | 221 |
| Tigray | 5451 | 1259 | 6710 | 418 |
| Oromia | 6955 | 1066 | 8021 | 896 |
| SNNPR | 408 | 61 | 469 | 15 |
| Total | 27997 | 3962 | 31959 | 1550 |

Plan for 2019

- Introduction and validation of more cultivated forages.
- Facilitate scaling of validated forage species and reach more kebeles and woredas in Amhara, Tigray, Oromia and SNNP regions.
- Organize more field visits, trainings, and attach postgraduate students.
- Produce more research products and share to the end users.



The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

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