

Scaling out small-scale mechanization in the Ethiopian highlands

Key messages

1. Good agronomic practices are required to close yield gaps on smallholder farms in the Ethiopian highlands.
2. The application of good agronomic technologies generally increases the demand for farm power.
3. Lower powered (8–15 horsepower) two-wheel tractors can provide alternative farm power for smallholders, in addition to animal traction and human power.
4. Additionally, two-wheel technologies can help in natural resource conservation and the creation of rural employment.

Plate 1. Animal traction maresha ploughing (left), planting and fertilization behind the maresha (centre), and direct seeding using a Fitarelli planter (right) currently used in Ethiopia and other African countries



The benefits of two-wheel tractor small-scale mechanization

Two wheel tractors are multi-purpose and their benefits include:

1. Reduced drudgery on the smallholder farms of Ethiopia.
2. Timely and precise planting at the onset of the growing season—leading to good crop establishment and high yields.
3. Seed and fertilizer placement and covering in one pass reduces the labour required for establishing a crop.
4. Powering threshers, shellers and harvesters reduces labour for post-harvest processing.
5. The provision of transport to rural communities when a trailer is attached to the tractor.
6. Water pumping for irrigation of high value crops.
7. The generation of employment and income through the provision of services to rural communities.

Approaches for the promotion of small-scale mechanization

Different scaling out models are being applied in the highlands of Ethiopia through **specialized private**:

1. Individual farmer
2. Individual service provision
3. Youth group service provision
4. Community/farmer group/union service provision.

Scaling out partnerships

In scaling out small-scale mechanization, the program seeks to ensure the sustainability after the project ends. In this regard, the project team is working with:

1. The mechanization department of the Ministry of Agriculture and Natural Resources.
2. Regional bureaus of agriculture.
3. Public and private companies involved in the manufacturing and distribution of agricultural equipment with established aftersales support.

4. Non-governmental organizations involved in agriculture and rural development.
5. Micro-finance organizations offering credit to service providers and farmers.

Plate 2. Direct planting and rural transportation using a two-wheel



Acknowledgments

Africa RISING Ethiopia would like to thank the United States Agency for International Development (USAID) for the financial support provided to the project and to the local partners and farmers in the Amhara, Tigray, Oromia and Southern Nations, Nationalities, and People's regions for their active participation in the tree Lucerne action research activities.

The contents are the responsibility of the producing organization and do not necessarily reflect the opinion of USAID or the US government.



ILRI thanks all donors that globally support its work through their contributions to the [CGIAR system](#)

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 US 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.

Contact: Walter Mupangwa (CIMMYT); Dr. Rabe Yahaya; Ephrem Tadesse

africa-rising.net

