

Africa RISING in the Ethiopian Highlands

Giving power to Africa-RISING farmers through small mechanization

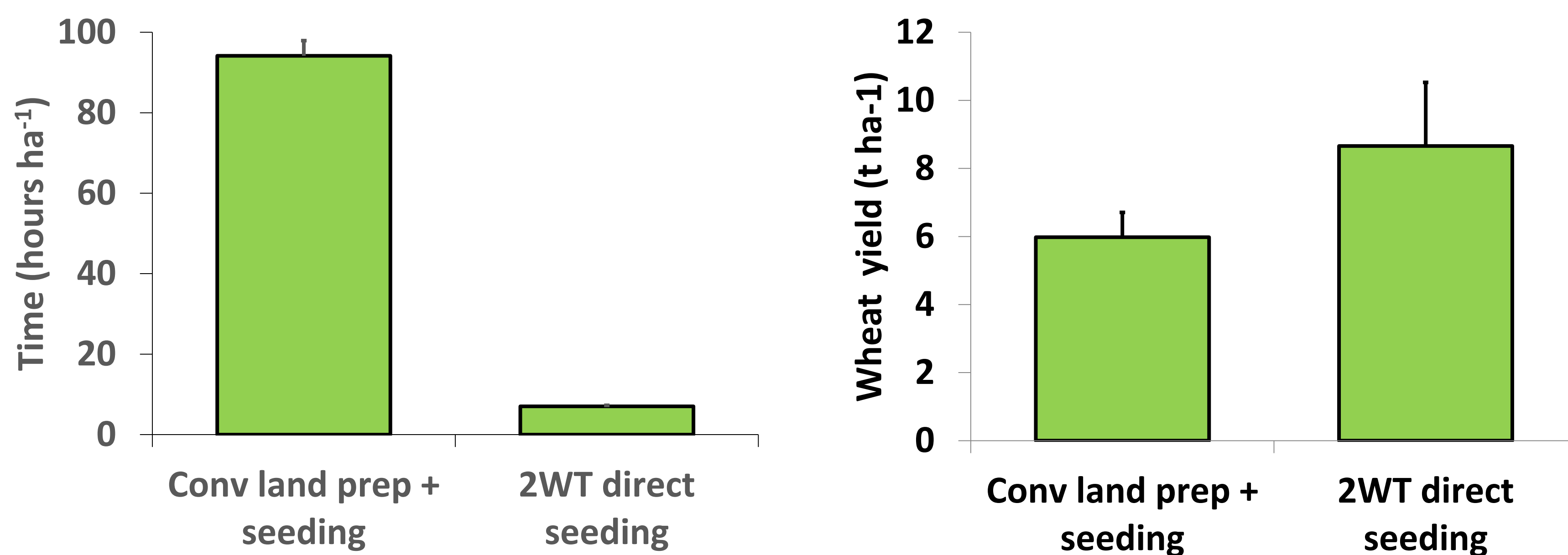
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Appropriate mechanization for sustainable intensification

- Yield improving technologies are well known (e.g., row planting, timely weeding, micro-dosing), but their application generally increases the demand for farm power: human labor, draught animal power or engine power.
- However, farm power has increased very slowly in Ethiopia.
- Land preparation is one of the most critical operation, and one of the most power intensive.
- Zero-tillage (i.e., direct seeding without prior land preparation) allows for quick crop establishment and makes the use of low powered, affordable, and easy to maintain two-wheel tractors.
- Two-wheel tractors are multipurpose sources of power and can be used for operations such as transport, threshing and water pumping.

Delivery models based on private sector engagement to ensure sustainability

- Most Ethiopian farmers are capital constrained and unable to purchase two-wheel tractors individually: they could nevertheless access mechanization through services provided by rural entrepreneurs.
- In addition, it is not profitable for farmers to own machines unless they provide services.
- The profitability of service provision increases with multipurpose use of the tractors (e.g., seeding, transport, threshing), which increases tractor use rates.



Comparison of the performance of wheat established conventionally (maresha ploughing, manual seeding and broadcasting of fertilizer) and established through direct seeding with a two-wheel tractor (2WT). The time necessary to establish a wheat crop is more than 10 times lower and yield is increased by more than 2 tonnes.



Biomass shortages, diseases and droughts are challenging the use of oxen in many parts of Ethiopia. Agriculture in the country is dominated by labor-intensive operations.



Our approach to appropriate mechanization summarized in one picture: a direct seeder powered by a locally available two-wheel tractor (2WT) operated by a rural service provider receiving continuous training.



Multipurpose use of two-wheel tractors: reaping, threshing, transporting and water pumping.

Core partners



We thank farmers and local partners in Africa RISING sites for their support



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