

# Scaling small-scale mechanization in the Ethiopian Highlands

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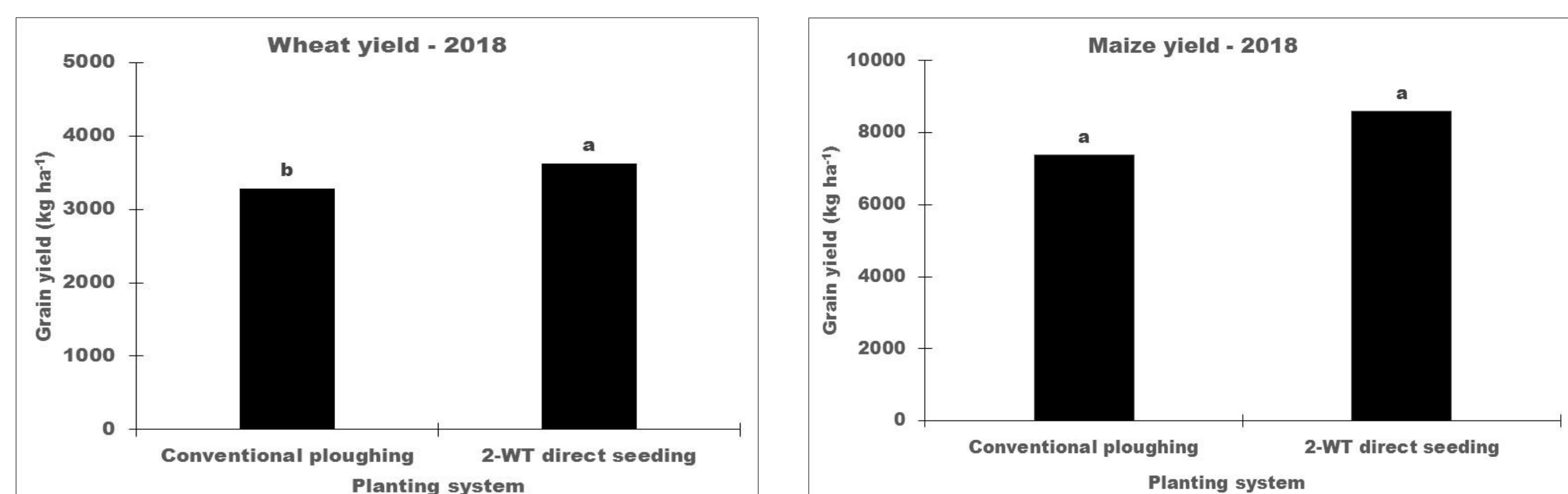
## Introduction

Farming operations on smallholder farms in Ethiopia are predominantly performed by human muscle power leading to high drudgery. The animal-drawn *maresha* is a symbol of agriculture in Ethiopia. However, the system is labour intensive especially at land preparation stage when the soil is tilled 3-4 times before planting. Precision in planting and fertilization, irrigation of high value crops, harvesting and post-harvest processing is low on smallholder farms. The two wheel tractor (2 WT) based technologies offer an opportunity to tackle some of these challenges faced on smallholder farms in Ethiopia.

## Method/Approaches

- In-class and on-field training of service providers (SPs) and agri officials.
- Paired plot on-farm demonstrations as learning and data generation centres.
- Awareness/demand creation events on small mechanization.
- SP for scaling technologies, income generation and employment.
- Government and private sector engagement throughout project implementation.
- Survey – assessing effectiveness of SP models.

## Results/Achievements



Type of Technology	Cost without mechanization (\$ ha <sup>-1</sup> )	Cost with mechanization (\$ ha <sup>-1</sup> )	Difference (\$ ha <sup>-1</sup> )	% cost reduction as a result of hiring mechanization services by farmers
2 wheel tractor wheat planter	105.20	63.40	41.80	40
Wheat harvester	125.90	59.30	66.70	53
Wheat thresher	201.10	92.10	109.00	54
Trailer for transportation	48.90	40.90	8.00	16

- 1100 hhs had received different 2 WT mechanization services in December 2018. We trained 1 female and 24 male service providers in 2018.

## Acknowledgement

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## Key challenges and lessons

- Lack of commitment by some service providers
- Uncertainty of project funds during 2018.
- Selection of service providers – target business minded people.
- First assess the niche for different 2 WT technologies before investing in different equipment.
- Training is a continuous process in the use of mechanization.
- Private sector partners require big numbers to seriously invest/participate in mechanization activities.



Figure 1. Various field activities in relation to mechanization in the Ethiopian highlands.

## Plans for 2019

- Training: Technical and agribusiness training of SPs and equipment operators.
- Scaling: (a) Awareness creation through field days and on-farm demonstrations, (b) service provision of 2 WT technologies.
- Research: (a) Assessing the effectiveness of service provision models being used for scaling 2 WT based technologies.
- (b) Assessing profitability of different 2 WT services
- Research: On-farm trials/demos for generation of maize and wheat productivity and profitability.
- Publication: Assessing effectiveness of service provision models.