# Africa RISING in the Ethiopian Highlands

# Value chains, markets and economics: Africa RISING Science, Innovations and Technologies with Scaling Potential from the Ethiopian Highlands

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## Key Messages

- Several promising scalable crop and livestock production technologies were identified with evidence of significant impact on production, productivity and farm household incomes: improved wheat seeds, potato seeds, forage seeds, potato, dairy animals and small ruminants.
- For example, farmers are aware of and willing to pay for improved forage seeds or planting materials–there is significant market potential for improved forage seeds.
- However, sustainable scaling requires upgrading the whole value chains

## Objectives and approach

- The main objective of the value chains and economic research was to investigate the potential market demand and commercial viabilities and hence scalability for selected crop and livestock value chains
- Data from multiple sources were used. Sample survey of households using structured survey instruments, group discussions, key informant interviews, participatory community assessment, telephone interviews, literature review and data was also obtained from secondary sources.
- A mixed analytical approach (involving statistical, econometric and financial models) was used to answer several research questions.

## Key results

- There is significant awareness among smallholder farmers about the improved forage crops, approximately 87% of the sample farmers reported they are aware of improved forage crops of some kind.
- However, in terms of adoption only 51% of the sample households reported ever using improved forage crops
- There is strong evidence of significant potential market demand for improved forage seeds among smallholder farmers in Ethiopia, between 64–81% of the farm households surveyed were willing to buy improved FS, if FS is commercially available in the market.

## Significance and scaling potential

- The scaling up strategies (either demand driven or supply driven) could be different for different improved FSs based on the comparison of WTP and breakeven point prices.
- For most FS, the amount of WTP is lower than the current market prices offered by NGOs. This indicates that (1) the NGOs and public FS projects have been providing some kind of subsidy to the FS producers; (2) Unstable FS price structure—significant drops in prices of FS could happen if the NGOs stop their participation leading to decrease in incentives for the private sector seed multiplication; (3) In a situation where WTP is less than breakeven prices, the private FS producers might find it unprofitable and cease production—especially for alfalfa, Rhodes grass, vetch and oats.

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**Table 1 Summary of households' response to WTP questions**

| Type of forage seed | Willing-to-buy (%) | Mean WTP (ETB/Unit) | WTP as a percentage of current mean market price (%) |
|---|---|---|---|
| Alfalfa | 81 | 291.2 | 43.5 |
| Rhodes | 79 | 211.4 | 47.0 |
| Pigeon Pea | 71 | 143.0 | 57.2 |
| Desho | 77 | 2.7 | 675.0 |
| Lablab | 67 | 134.6 | 53.8 |
| Cowpea | 64 | 150.4 | 60.2 |
| Oats | 78 | 14.3 | 143.0 |
| Vetch | 71 | 24.4 | 97.8 |
| Napier Grass | 77 | 1.6 | 213.0 |
| Source: Survey data. | | | |

**Table 2 Results of Break-even-point analysis for forage seeds**

| Type of FS | Current Yield (Kg/ha/ year) | WTP (ETB/kg) | Current selling price (ETB/kg) | Break-even point | |
|---|---|---|---|---|---|
| | | | | Price (ETB/kg) | Yield (kg/ha/year) |
| Alfalfa | 250 | 291.2 | 670.0 | 520.0 | 446.4 |
| Rhodes grass | 400 | 211.4 | 450.0 | 262.5 | 496.7 |
| Pigeon Pea | 900 | 143.0 | 250.0 | 78.0 | 489.5 |
| Cowpea | 650 | 150.4 | 250.0 | 131.0 | 565.2 |
| Lablab | 1400 | 134.6 | 250.0 | 61.0 | 631.5 |
| Vetch | 700 | 24.4 | 25.0 | 30.0 | 860.9 |
| Oats | 800 | 14.3 | 10.0 | 32.0 | 1,748.2 |
| Desho | 40,000 | 2.7 | 0.40 | 0.63 | 9,259.3 |
| Napier Grass | 1,000,000 | 1.6 | 0.75 | 0.08 | 48,461.3 |
| Source: Survey data and ILRI(2016). | | | | | |

For alfalfa, Rhodes grass, vetch and oats yield improvement and/or reductions in their costs of production is critical for commercial profitability.

- The variations in the amounts of WTP for different FS indicate the need for targeted supports for different FS: (1) Price support (in the short-run); (2) Promotional support; and (3) Productivity improvements.
- The demand for FS and PM is derived: the functioning of livestock and livestock products markets is also critical
- The mixed analytical approach proved useful to provide important insights to inform the strategies for scaling up the adoption of various improved forage crops.

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## Core partners