

Interventions in Tomato Seed Supply System in Ethiopia

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Introduction and problem statement

Ethiopia's agricultural landscape is characterized by the vital role played by smallholder farmers in producing a significant portion of the nation's food. Vegetable production plays vital role in food and nutrition security as well as diets diversification.

The vegetable seed supply system in Ethiopia grapples with several critical issues that necessitate in-depth examination and targeted interventions:

- **Weakness in supply and distribution:** The current vegetable seed supply and distribution system in Ethiopia is marked by inefficiencies, leading to irregular access to quality seeds for smallholder farmers, particularly in remote regions (Fasikaw B., 2019).
- **Informal seed supply:** The presence and strength of informal seed supply networks poses challenges to quality control and genetic purity, impacting the overall productivity and sustainability of tomato farming (Getachew M., 2010).
- **Reliance on local varieties:** A significant proportion of smallholder farmers continue to rely on traditional, unimproved vegetable varieties, limiting their yield potential
- **Import dependency:** Despite the the work of research centres in Ethiopia, there is still the reliance on import in order to cover the demand on vegetable seed (Amsalu A., et al. 2014).
- **Inadequate marketing infrastructure:** The absence of robust seed marketing information and infrastructure further exacerbates the challenges faced by smallholder farmers, hindering their access to diverse and high-quality seed options.

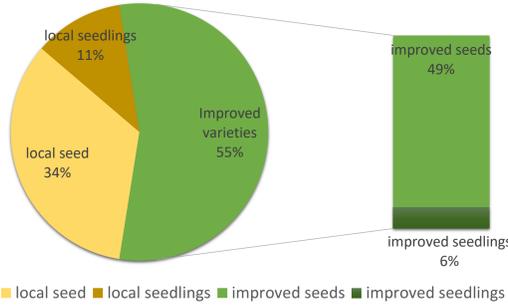


Diagram 1: Art of planting material used by smallholder tomato producers, for all three regions.

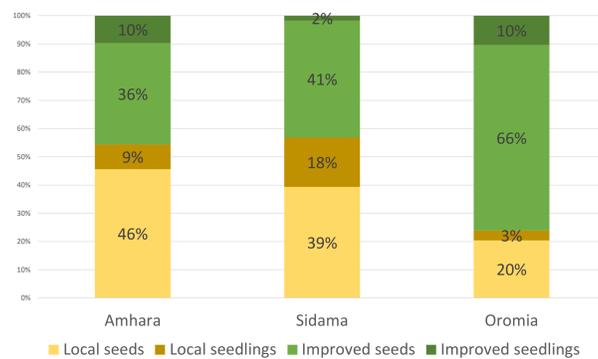


Diagram 2: Art of planting material used, according to the regions.

Objectives of the research

The research aims to lay the foundation for understanding the complexities of the vegetable seed supply chain in Ethiopia. Moreover, it will provide a basis for proposing targeted strategies and interventions that can contribute to its improvement, ultimately leading to higher gross margins for smallholder vegetable farmers and enhanced food security in the country.

Two core objectives of the research are:

- **To provide an overview of the existing vegetable seed supply chain in Ethiopia**
- **Map and identify bottlenecks within the supply chain system.**



Fig. 1: Tomato producers in Arsi zone, Oromia, Ethiopia. Arsi University.

Methods

- After a survey of 1200 farmers in three Ethiopian regions (Amhara, Oromia and Sidama), 470 tomato farmers were identified and separated for an analysis.
- 15 companies working in the area of seed production and trade are interviewed in order to get the overview on their functionality and challenges.
- Several experts in related area from government and non-government organizations got interviewed on supply chain system.
- For a holistic overview of the system, the data is combined and analyzed by System Thinking Approach and presented through Causal Loop Diagrams.

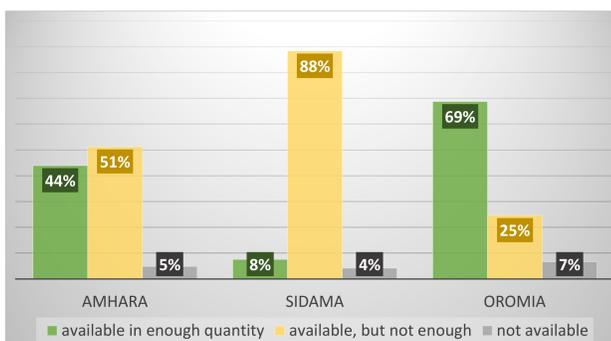


Diagram 3: Availability of improved variety seeds and seedlings, according to the regions.

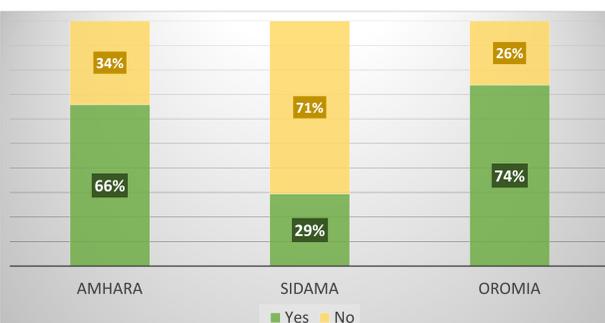


Diagram 4: Farmers answers on the question „Was the improved seed/seedlings timely available for purchase?“, according to the regions.

Results:

- Relative high usage of local varieties by smallholder farmers in Ethiopia. Highest in Amhara, followed by Sidama region. Lowest in Oromia.
- Availability of seed/seedlings is recorded to be highest in Oromia and the lowest in Sidama region.
- As the most important reason for using local varieties, farmers mentioned the high price for improved varieties, followed by low awareness of importance of improved varieties.
- As the most important source of seeds for the production, the farmers mentioned the local market in all three regions.
- The highest involvement of informal seed system was recorded in Amhara region. 46% of farmers are getting their seed/seedlings from informal seed system.

Outcomes:

- Evidence on the seed supply chain and detected bottlenecks and challenges of the system.
- Proposal adequate policy intervention in the system in order to address the challenges.
- Assessment of the policy intervention using agent-based modelling.

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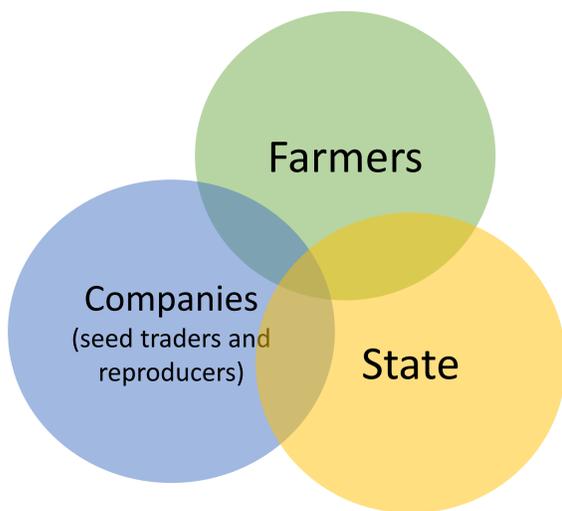


Fig. 2: Parties involved in the research - Holistic approach

Source	All regions	Amhara	Sidama	Oromia	Number of answers
own (saved)	16%	14%	22%	16%	611
cooperatives	21%	7%	22%	21%	611
local market	38%	31%	30%	38%	611
neighbor farm	10%	32%	8%	10%	611
NGOs	7%	7%	6%	7%	611
GOs	8%	10%	12%	8%	611
	100%	100%	100%	100%	

Table 1: The source of planting material of smallholder farmers, according to the regions.

References:

Amsalu Ayana, Victor Afari-Sefa, Bezabih Emana, Fekadu F. Dinssa, Tesfaye Balemi, Milkessa Temesgen. Analysis of Vegetable Seed Systems and Implications for Vegetable Development in the Humid Tropics of Ethiopia. International Journal of Agriculture and Forestry 2014, 4(4): 325-337.

Fasikaw B., 2019. Challenges and Opportunities of Vegetable Quality Seed Production and Seed System in Ethiopia. International Journal of Research Studies in Agricultural Sciences (IJSAS) Volume 5, Issue 8, 2019, PP 15-25.

Getachew Mergia, 2010. Challenges and Opportunities of local seed business (LSB) development in Endamekhoni and Atsbawemberta weredas, Tigray, Ethiopia