

Helping small farmers to commercialise: Evidence from growing onion and tomatoes for sale in central Ethiopia

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Key points:

- Despite decades-old local awareness and knowledge on production of irrigated high value cash crops, many farmers only began to expand irrigated onions and tomatoes for sale once the local agricultural bureau began to support them after 2005. Small but well-focused outside support can help small farmers to seize local opportunities that, though incurring production and market risks, can raise their earnings and improve their livelihoods.
- Most types of small farmers – young or small, poor or rich – took part in the intervention. Female farmers, however, were discouraged owing to demands on their scarce time, price fluctuations, working capital, and difficulties selling crops.
- The intervention helps local agriculture to become more commercialised. Once farmers engaged in commercial production, a remarkable change was observed in the objectives of farmers growing irrigated crops. Investment on farm and non-farm businesses emerged as the principal objective, rather than just subsistence and income.
- In view of emerging challenges to expand irrigated farm land, effort should be made to learn and scale up practices of best performers who currently harvest substantially higher yields more than their neighbors.

- In marketing, there is scope to improve the seasonal mismatch in demand and supply and facilitate the linkages between producers and potential buyers in nearby towns.

Background

The Ethiopian government reaffirmed its commitment to smallholder agriculture in its third five-year plan 2009/10 – 2014/15, the Growth & Transformation Program. It identifies three strategic directions to make smallholder agriculture the main source of agricultural growth. These include: scaling up best practice by bringing up the productivity of most average farmers closer to those of best farmers who currently harvest two to three times more production from the same farmland; expansion of irrigation development; and production of high value crops in suitable areas (MoFED, 2010).

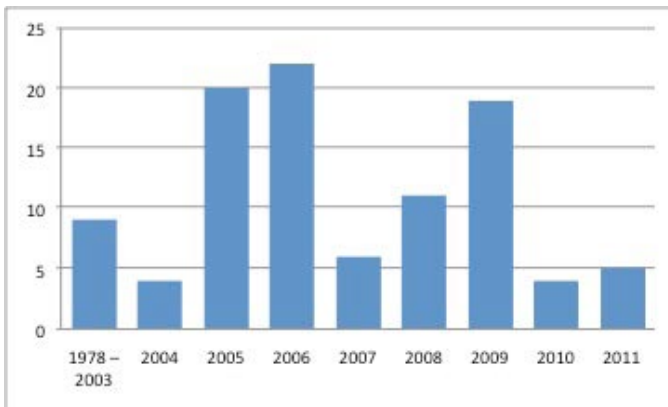
The Future Agricultures Consortium (FAC) has analysed, documented and disseminated experience of village-level interventions and best practices to explore cases that inform and strengthen national agricultural strategies in selected African countries. This research update is part of a larger study that aims to generate insights and lessons on understanding how small farmers improve their productivity, income and market participation.

The study

Despite a long history of irrigated onion and tomato production, especially among some farmers close to the Mojo river, commercial production has expanded significantly since 2005 when national agricultural strategies began to favour high value cash crops and productivity enhancement. Prior to 2005, only 14% of farmers were growing irrigated vegetables. The government then began to support them with new skills and techniques in diverting and pumping water as well as its productive use.

A study of 100 participant farmers and some key informants showed that over 80% of farmers reported that they started production of onion and tomato between 2006 and 2010, see Figure A.

Figure A First year farmers planted onions or tomatoes, percentage



Despite decades-old local awareness and knowledge of irrigated production of high-value cash crops, only after government intervention did most farmers began to engage and expand commercial production of onions and tomatoes. Small but well-identified outside support can thus help small farmers to seize local opportunities that, though incurring production and market risks, can raise earnings and improve livelihoods.

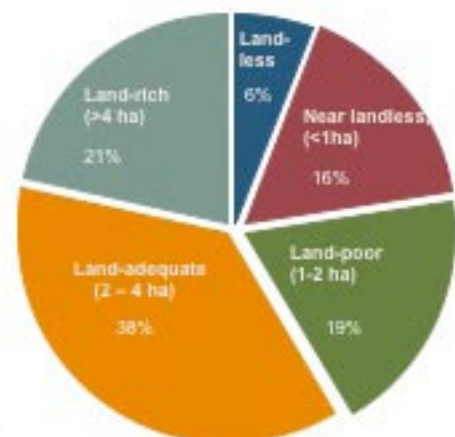


Emerging insights

Participation: Heterogeneity in all but in gender

All types of small farmers — young or old, rich or poor — see Figure B for land holding, small or large family size — participated in and benefited from irrigation.

Figure B Onion and tomato producers by land ownership, percentage



Source: 2010 Field survey

Participation is, however, biased against women farmers. Though female households constitute about 8% to 10% of sample farming households, only 1% were irrigated crops for the market. Discussions with key informants revealed that the following factors discourage participation of female farmers:

- Irrigating tomato and onion requires labor and management. Given high labor demand for domestic activities, this makes participation less attractive to female farmers;
- High and unpredictable fluctuation of price of these crops whose impact is immediate and relatively high on female farmers;
- High cash and start-up investment requirement of these crops; and
- Lack of true competitive marketing system coupled with weak, non-binding trade agreements between producers and brokers and the lack of accountability of the later for their practices hurts female more than male farmers.

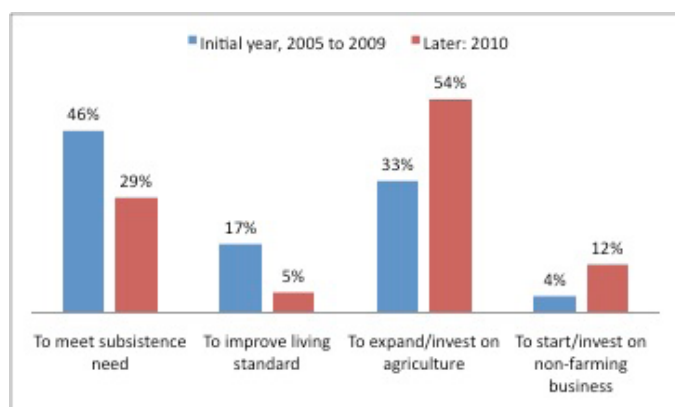
Participation of female households in villages near to the source of water for irrigation is, however, higher compared to villages far from the source, probably since proximity to water eases fierce competition for this resource from male farmers. Moreover, the long experience of irrigated vegetable production and marketing in these villages helps female farmers acquire production and marketing skills of irrigated vegetables more easily. Having irrigated farms close to the homestead makes it easier for female farmers to manage.

Shifts in production objectives

The major objective of the intervention is to diversify from grains to irrigated crops for sale. Participant farmers, however, have diverse objectives including improving consumption of food and non-food items and investment on farm and non-farm activities. In initial years, consumption was the major objective but this has changed in later years.

Once farmers engaged in production of irrigated onions and tomatoes, a remarkable change was observed in the role of these irrigated crops and objectives of farmers in growing them. As shown in Figure C, the major objective has clearly shifted from production to meet subsistence need and improving living standard to one of investment, demonstrating the dynamism that can be activated through linkages with markets.

Figure C Why farmers grow onions and tomatoes, major objective



The shift in farmers' objective to investment on farm and non-farm business activities within two to three years also shows the potential that these high value cash crops have in monetising the local economy and commercialising local agriculture.

What has changed since the intervention?

More farmers irrigate more land, grow more vegetables

The number of irrigation users increased rapidly. Median sizes of plots irrigated for onions and tomatoes also expanded, from 1.5 timad [0.25 ha] to 2.0 timad, over five years. The share of land sown to cash-crops thus increased from 11% in 2006 to 18% in 2010. Farmers who irrigate their entire farm and specialise in production of irrigated onions and tomatoes doubled from 5% to 10% over the same period.

Participant farmers, however, have not equally benefited. The top 25% farmers, for instance, managed to double their irrigated farm size from 2 to 4 timad, while the average irrigated plot for farmers in the bottom 25% declined marginally from 0.67 timad to 0.5 timad. Despite increasing interest in irrigated crops for sale, the number of new irrigation users has been declining since 2010 because of high competition for available water, mainly from downstream users, and shortage of suitable land that can be irrigated cheaply and easily.

Wide disparity in productivity: great scope for improvement

Yields of onion and tomato vary widely. Average onion production is about 4,333 kilogram per timad, but varies between 2,400 kilogram for the bottom 25% of onion farmers, to over 6,000 kg among the top 25%. Similarly, the gap in productivity in tomato varies between 2,500 kilogram and 4,500 kilogram per timad among the bottom and top 25% performers. This wide gap in productivity implies a corresponding great opportunity to boost production by narrowing the gap in performance, by learning from the better performers.

Productivity positively corresponds with age of farmer, specialization, use of purchased inputs and engagement in factor markets

Young, land-poor farmers and those specializing in production of onions and tomatoes are highly productive. On the contrary, old, land-rich farmers who allocate a greater proportion of their land for food crops were relatively less productive in their vegetable production. Survey data indicate that farmers aged less than 30 years harvested on average about 5,692 kilogram of onions and 3,597 kilogram of tomatoes which exceeds productivity of farmers aged 50 years or more by 45% and 41%, respectively. Similarly, the most productive group, the young farmers, were highly specialized and spent more time on their irrigated farms which were largely rented.

Though the cause-effect relationship was not established, the study shows the positive correlation between productivity and specialization, participation in factor markets and use of modern farm inputs, and inverse association with age of farmer.

Table 1: Performance, specialisation and participation in input markets

Performance	Productivity* (Kg/timad)	Average age (years)	Specialisation: Share of irrigated onion & tomato land in total area %	Share of rented land in total cultivated land	Cash expenditure on onion production (Birr/timad)
Highest	4,645 kg	27	60%	86%	4,178
Average	3,451 kg	41	32%	46%	3,419
Lowest	3,233 kg	59	16%	22%	2,551

* Weighted average productivity for onion & tomatoes

As shown in Table 1, there is scope to increase productivity of onions and tomatoes through further specialisation, and uptake of improved management practices and technology such as certified seeds and fertilisers. In addition factor markets should be encouraged further to ease the transfer of farmland from less productive farmers with land to more specialised and commercialised young farmers who have little land.

Market and market problems

The study shows the need for interventions to improve the seasonal mismatch in demand and supply and facilitate linkages between producers and potential buyers in the nearby towns. Despite high demand for vegetables in major towns within a 50 km radius accessible on all-weather roads, the majority of small farmers sell their product on-farm largely through brokers who are not accountable for their practices. Only 14% of producers move their products to potential buyers in market in the district town. Moreover, almost all sample farmers reported that they face one or more market problem, see Figure D. Over 80% of them reveal their interest to change the place or market where they currently sale.

Figure D Market problems reported by farmers



The number and type of market problems faced by farmers indicate the weak support to marketing compared to support they get for production. Moreover, skills in adding value through sorting, grading, packing, transporting and improved storage were little developed. Over 85% of vegetable growers think that grading and product standardisation bring higher value, but only 49% reported these practices.

Prices farmers received during the survey year fluctuated widely both across seasons and sellers farmers. Tomato price doubles or declines by half between high and low supply seasons. More strikingly, onion prices decline by four times during peak production. Price differences across seasons are explained mainly by demand and supply.

Price differences are also observed within same season. Average farm-gate prices for tomato, for farmers residing in the same village, sold during same season vary on average by 50%, while for onion, the difference between the top 25% sellers who got the best price and the bottom 25% who got the worst was on average 75%. Difference in access to market information or capacity to use it and farmers' technical skill to extend storage that can prolong the time of sale, and add value through grading and standardisation, explain part of the difference in prices farmers received within the same season.

Difference in product quality is also important in explaining differences in reported prices, for both differences reported across and within seasons. Though all surveyed farmers believe that quality matters for the price they received for their onion and tomatoes, only half of them think that quality always bring better price.

Policy implications

Where access to water and irrigable land are becoming scarce and expensive, efficient use of available water and improved productivity on existing irrigated land is crucial. Extension agents need to help small farmers to improve water availability for their

crops through improved farm management and conservation, as well as through improved varieties and integrated water, nutrient and pest management. The existing wide gap in productivity demonstrates the potential to increase production even with existing local knowledge and skills.

For marketing, interventions should focus on the following issues:

- Delineating the value chain;
- Identifying the actors involved; and on
- Information flows as products move from producers to end consumers.

This will help map out a strategy to improve marketing, as well as help different value chain actors to make better informed decisions.

Provisionally, it seems farmers could benefit from improved market information and quality standards, training on marketing skills, and help in storing produce to extend the sales period. Efforts should also be made to legalise the functioning of brokers and other middle men so they will be accountable for their practices and enforce true functioning of a competitive marketing system.

This Research Update was written by **Samuel Gebreselassie** of the Future Agricultures Consortium. The series editor is Beatrice Ouma. Further information about this series of Research Updates at: www.future-agricultures.org

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